```
Appendix F
/* IR after various phases for first part of program*/

IR after CIL Reader (flag cil)

   {-7}          = START _try                                      #37
   _i, _q, _a, _b = ENTERFUNC _try                                 #37
   _j            = ASSIGN 0                                        #40
   t110          = ASSIGN _q                                       #41
   [t110]        = ASSIGN 0                                        #41
                   GOTO $L2                                        #42
$L2:  (2 refs)                                                     #42
   t111          = ASSIGN _q                                       #42
   t112          = CMP(EQ) [t111], 0                               #42
                   CBRANCH(EQ) t112, $L4, $L3                      #42
$L4:  (1 ref)                                                      #42
   t113          = CMP(NE) _j, 8                                   #42
                   CBRANCH(NE) t113, $L5, $L3                      #42
$L5:  (1 ref)                                                      #42
   t114          = ADD _j, 1                                       #44
   _j            = ASSIGN t114                                     #44
   t115          = ASSIGN _q                                       #45
   [t115]        = ASSIGN 0                                        #45
   t116          = MUL _j, 4                                       #46
   t117          = ADD _b, t116                                    #46
   t118          = ASSIGN t117                                     #46
   t119          = CMP(EQ) [t118], 1                               #46
                   CBRANCH(EQ) t119, $L7, $L6                      #46
$L7:  (1 ref)                                                      #46
   t120          = ADD _i, _j                                      #46
   t121          = MUL t120, 4                                     #46
   t122          = ADD _a, t121                                    #46
   t123          = ASSIGN t122                                     #46
   t124          = CMP(EQ) [t123], 1                               #46
                   CBRANCH(EQ) t124, $L8, $L6                      #46
$L8:  (1 ref)                                                      #46
   t126          = SUB _i, _j                                      #46
   t127          = ADD t126, 7                                     #46
   t128          = MUL t127, 4                                     #46
   t129          = SUBSCRIPT &_c, t128                             #46
   t130          = ASSIGN t129                                     #46
   t131          = CMP(EQ) [t130], 1                               #46
                   CBRANCH(EQ) t131, $L9, $L6                      #46
$L9:  (1 ref)                                                      #46
   t133          = MUL _i, 4                                       #48
   t134          = SUBSCRIPT &_x, t133                             #48
   t135          = ASSIGN t134                                     #48
   [t135]        = ASSIGN _j                                       #48
   t136          = MUL _j, 4                                       #49
   t137          = ADD _b, t136                                    #49
   t138          = ASSIGN t137                                     #49
   [t138]        = ASSIGN 0                                        #49
   t139          = ADD _i, _j                                      #50
   t140        = MUL t139, 4                                            #50
   t141        = ADD _a, t140                                           #50
   t142        = ASSIGN t141                                            #50
   [t142]      = ASSIGN 0                                               #50
   t143        = SUB _i, _j                                             #51
   t144        = ADD t143, 7                                            #51
   t145        = MUL t144, 4                                            #51
   t146        = SUBSCRIPT &_c, t145                                    #51
   t147        = ASSIGN t146                                            #51
   [t147]      = ASSIGN 0                                               #51
   t148        = CMP(LT) _i, 8                                          #52
                 CBRANCH(LT) t148, $L11, $L10                           #52
$L11:  (1 ref)                                                          #52
   t149        = ADD _i, 1                                              #54
   {-5}        = CALL _try, t149, _q, _a, _b, {-5} [Handler: $L1]       #54
   t151        = ASSIGN _q                                              #55
   t152        = CMP(EQ) [t151], 0                                      #55
                 CBRANCH(EQ) t152, $L13, $L12                           #55
$L13:  (1 ref)                                                          #55
   t153        = MUL _j, 4                                              #57
   t154        = ADD _b, t153                                           #57
   t155        = ASSIGN t154                                            #57
   [t155]      = ASSIGN 1                                               #57
   t156        = ADD _i, _j                                             #58
   t157        = MUL t156, 4                                            #58
   t158        = ADD _a, t157                                           #58
   t159        = ASSIGN t158                                            #58
   [t159]      = ASSIGN 1                                               #58
   t160        = SUB _i, _j                                             #59
   t161        = ADD t160, 7                                            #59
   t162        = MUL t161, 4                                            #59
   t163        = SUBSCRIPT &_c, t162                                    #59
   t164        = ASSIGN t163                                            #59
   [t164]      = ASSIGN 1                                               #59
                 GOTO $L12                                              #55
$L12:  (2 refs)                                                         #55
                 GOTO $L14                                              #62
$L10:  (1 ref)                                                          #52
   t165        = ASSIGN _q                                              #62
   [t165]      = ASSIGN 1                                               #62
                 GOTO $L14                                              #62
$L14:  (2 refs)                                                         #62
                 GOTO $L6                                               #46
$L6:  (4 refs)                                                          #46
                 GOTO $L2                                               #64
$L3:  (2 refs)                                                          #42
                 GOTO $L15                                              #65
$L1:  (1 ref)                                                           #37
                 UNWIND _try                                            #37
$L15:  (1 ref)                                                          #65
                 EXITFUNC _try                                          #65
                 END _try, {-7}                                         #65
```

IR after Type Checker (flag Type Checker)

```
   {-7}            = START _try                                        #37
   _i, _q, _a, _b = ENTERFUNC _try                                     #37
   _j              = ASSIGN 0                                          #40
   t110            = ASSIGN _q                                         #41
   [t110]          = ASSIGN 0                                          #41
                     GOTO $L2                                          #42
$L2:  (2 refs)                                                         #42
   t111            = ASSIGN _q                                         #42
   t112            = CMP(EQ) [t111], 0                                 #42
                     CBRANCH(EQ) t112, $L4, $L3                        #42
$L4:  (1 ref)                                                          #42
   t113            = CMP(NE) _j, 8                                     #42
                     CBRANCH(NE) t113, $L5, $L3                        #42
$L5:  (1 ref)                                                          #42
   t114            = ADD _j, 1                                         #44
   _j              = ASSIGN t114                                       #44
   t115            = ASSIGN _q                                         #45
   [t115]          = ASSIGN 0                                          #45
   t116            = MUL _j, 4                                         #46
   t117            = ADD _b, t116                                      #46
   t118            = ASSIGN t117                                       #46
   t119            = CMP(EQ) [t118], 1                                 #46
                     CBRANCH(EQ) t119, $L7, $L6                        #46
$L7:  (1 ref)                                                          #46
   t120            = ADD _i, _j                                        #46
   t121            = MUL t120, 4                                       #46
   t122            = ADD _a, t121                                      #46
   t123            = ASSIGN t122                                       #46
   t124            = CMP(EQ) [t123], 1                                 #46
                     CBRANCH(EQ) t124, $L8, $L6                        #46
$L8:  (1 ref)                                                          #46
   t126            = SUB _i, _j                                        #46
   t127            = ADD t126, 7                                       #46
   t128            = MUL t127, 4                                       #46
   t129            = SUBSCRIPT &_c, t128                               #46
   t130            = ASSIGN t129                                       #46
   t131            = CMP(EQ) [t130], 1                                 #46
                     CBRANCH(EQ) t131, $L9, $L6                        #46
$L9:  (1 ref)                                                          #46
   t133            = MUL _i, 4                                         #48
   t134            = SUBSCRIPT &_x, t133                               #48
   t135            = ASSIGN t134                                       #48
   [t135]          = ASSIGN _j                                         #48
   t136            = MUL _j, 4                                         #49
   t137            = ADD _b, t136                                      #49
   t138            = ASSIGN t137                                       #49
   [t138]          = ASSIGN 0                                          #49
   t139            = ADD _i, _j                                        #50
   t140            = MUL t139, 4                                       #50
   t141            = ADD _a, t140                                      #50
   t142          = ASSIGN t141                                                     #50
   [t142]        = ASSIGN 0                                                        #50
   t143          = SUB _i, _j                                                      #51
   t144          = ADD t143, 7                                                     #51
   t145          = MUL t144, 4                                                     #51
   t146          = SUBSCRIPT &_c, t145                                             #51
   t147          = ASSIGN t146                                                     #51
   [t147]        = ASSIGN 0                                                        #51
   t148          = CMP(LT) _i, 8                                                   #52
                   CBRANCH(LT) t148, $L11, $L10                                    #52
$L11:  (1 ref)                                                                     #52
   t149          = ADD _i, 1                                                       #54
   {-5}          = CALL _try, t149, _q, _a, _b, {-5} [Handler: $L1]                #54
   t151          = ASSIGN _q                                                       #55
   t152          = CMP(EQ) [t151], 0                                               #55
                   CBRANCH(EQ) t152, $L13, $L12                                    #55
$L13:  (1 ref)                                                                     #55
   t153          = MUL _j, 4                                                       #57
   t154          = ADD _b, t153                                                    #57
   t155          = ASSIGN t154                                                     #57
   [t155]        = ASSIGN 1                                                        #57
   t156          = ADD _i, _j                                                      #58
   t157          = MUL t156, 4                                                     #58
   t158          = ADD _a, t157                                                    #58
   t159          = ASSIGN t158                                                     #58
   [t159]        = ASSIGN 1                                                        #58
   t160          = SUB _i, _j                                                      #59
   t161          = ADD t160, 7                                                     #59
   t162          = MUL t161, 4                                                     #59
   t163          = SUBSCRIPT &_c, t162                                             #59
   t164          = ASSIGN t163                                                     #59
   [t164]        = ASSIGN 1                                                        #59
                   GOTO $L12                                                       #55
$L12:  (2 refs)                                                                    #55
                   GOTO $L14                                                       #62
$L10:  (1 ref)                                                                     #52
   t165          = ASSIGN _q                                                       #62
   [t165]        = ASSIGN 1                                                        #62
                   GOTO $L14                                                       #62
$L14:  (2 refs)                                                                    #62
                   GOTO $L6                                                        #46
$L6:  (4 refs)                                                                     #46
                   GOTO $L2                                                        #64
$L3:  (2 refs)                                                                     #42
                   GOTO $L15                                                       #65
$L1:  (1 ref)                                                                      #37
                   UNWIND _try                                                     #37
$L15:  (1 ref)                                                                     #65
                   EXITFUNC _try                                                   #65
                   END _try, {-7}                                                  #65
```

IR after MIR Lower (flag MIRLower)

```
   {-7}        = START _try                                              #37
   _i, _q, _a, _b = ENTERFUNC _try                                       #37
   _j          = ASSIGN 0                                                #40
   t110        = ASSIGN _q                                               #41
   [t110]      = ASSIGN 0                                                #41
                 GOTO $L2                                                #42
$L2:  (2 refs)                                                           #42
   t111        = ASSIGN _q                                               #42
   t112        = CMP(EQ) [t111], 0                                       #42
                 CBRANCH(EQ) t112, $L4, $L3                              #42
$L4:  (1 ref)                                                            #42
   t113        = CMP(NE) _j, 8                                           #42
                 CBRANCH(NE) t113, $L5, $L3                              #42
$L5:  (1 ref)                                                            #42
   t114        = ADD _j, 1                                               #44
   _j          = ASSIGN t114                                             #44
   t115        = ASSIGN _q                                               #45
   [t115]      = ASSIGN 0                                                #45
   t116        = MUL _j, 4                                               #46
   t117        = ADD _b, t116                                            #46
   t118        = ASSIGN t117                                             #46
   t119        = CMP(EQ) [t118], 1                                       #46
                 CBRANCH(EQ) t119, $L7, $L6                              #46
$L7:  (1 ref)                                                            #46
   t120        = ADD _i, _j                                              #46
   t121        = MUL t120, 4                                             #46
   t122        = ADD _a, t121                                            #46
   t123        = ASSIGN t122                                             #46
   t124        = CMP(EQ) [t123], 1                                       #46
                 CBRANCH(EQ) t124, $L8, $L6                              #46
$L8:  (1 ref)                                                            #46
   t126        = SUB _i, _j                                              #46
   t127        = ADD t126, 7                                             #46
   t128        = MUL t127, 4                                             #46
   t129        = ADD &_c, t128                                           #46
   t130        = ASSIGN t129                                             #46
   t131        = CMP(EQ) [t130], 1                                       #46
                 CBRANCH(EQ) t131, $L9, $L6                              #46
$L9:  (1 ref)                                                            #46
   t133        = MUL _i, 4                                               #48
   t134        = ADD &_x, t133                                           #48
   t135        = ASSIGN t134                                             #48
   [t135]      = ASSIGN _j                                               #48
   t136        = MUL _j, 4                                               #49
   t137        = ADD _b, t136                                            #49
   t138        = ASSIGN t137                                             #49
   [t138]      = ASSIGN 0                                                #49
   t139        = ADD _i, _j                                              #50
   t140        = MUL t139, 4                                             #50
   t141        = ADD _a, t140                                            #50
   t142        = ASSIGN t141                                             #50
   [t142]      = ASSIGN 0                                                #50
   t143          = SUB _i, _j                                       #51
   t144          = ADD t143, 7                                      #51
   t145          = MUL t144, 4                                      #51
   t146          = ADD &_c, t145                                    #51
   t147          = ASSIGN t146                                      #51
   [t147]        = ASSIGN 0                                         #51
   t148          = CMP(LT) _i, 8                                    #52
                   CBRANCH(LT) t148, $L11, $L10                     #52
$L11:  (1 ref)                                                      #52
   t149          = ADD _i, 1                                        #54
   {-5}          = CALL _try, t149, _q, _a, _b, {-5} [Handler: $L1] #54
   t151          = ASSIGN _q                                        #55
   t152          = CMP(EQ) [t151], 0                                #55
                   CBRANCH(EQ) t152, $L13, $L12                     #55
$L13:  (1 ref)                                                      #55
   t153          = MUL _j, 4                                        #57
   t154          = ADD _b, t153                                     #57
   t155          = ASSIGN t154                                      #57
   [t155]        = ASSIGN 1                                         #57
   t156          = ADD _i, _j                                       #58
   t157          = MUL t156, 4                                      #58
   t158          = ADD _a, t157                                     #58
   t159          = ASSIGN t158                                      #58
   [t159]        = ASSIGN 1                                         #58
   t160          = SUB _i, _j                                       #59
   t161          = ADD t160, 7                                      #59
   t162          = MUL t161, 4                                      #59
   t163          = ADD &_c, t162                                    #59
   t164          = ASSIGN t163                                      #59
   [t164]        = ASSIGN 1                                         #59
                   GOTO $L12                                        #55
$L12:  (2 refs)                                                     #55
                   GOTO $L14                                        #62
$L10:  (1 ref)                                                      #52
   t165          = ASSIGN _q                                        #62
   [t165]        = ASSIGN 1                                         #62
                   GOTO $L14                                        #62
$L14:  (2 refs)                                                     #62
                   GOTO $L6                                         #46
$L6:  (4 refs)                                                      #46
                   GOTO $L2                                         #64
$L3:  (2 refs)                                                      #42
                   GOTO $L15                                        #65
$L1:  (1 ref)                                                       #37
                   UNWIND _try                                      #37
$L15:  (1 ref)                                                      #65
                   EXITFUNC _try                                    #65
                   END _try, {-7}                                   #65


IR after Ssa Construction and Optimization (flag Ssa)

==== Block 1 Pred() Succ(2) next 2 pre 1 post 38 iDom 1 df
```

```
   {-7}, {-1}  = START _try                                            #37
==== Block 2 Pred(1) Succ(3) prev 1 next 3 pre 2 post 37 iDom 1 df
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                     #37
   _j<*5>      = ASSIGN 0                                              #40
   tv110-<*8>  = ASSIGN _q<3>                                          #41
   [tv110-<8>] = ASSIGN 0                                              #41
                 GOTO $L2                                              #42
==== Block 3 Pred(15,2) Succ(16,4) prev 2 next 4 pre 3 post 36 iDom 2 df 3
$L2:  (2 refs)                                                         #42
   _j<*6>      = PHI _j<7>, _j<5>                                      #65
   tv111-<*9>  = ASSIGN _q<3>                                          #42
   tv112-<*10> = CMP(EQ) [tv111-<9>], 0                                #42
                 CBRANCH(EQ) tv112-<10>, $L4, $L3                      #42
==== Block 4 Pred(3) Succ(16,5) prev 3 next 5 pre 10 post 35 iDom 3 df 3,16,
19
$L4:  (1 ref)                                                          #42
   tv113-<*11> = CMP(NE) _j<6>, 8                                      #42
                 CBRANCH(NE) tv113-<11>, $L5, $L3                      #42
==== Block 5 Pred(4) Succ(15,6) prev 4 next 6 pre 11 post 34 iDom 4 df 3,19
$L5:  (1 ref)                                                          #42
   tv114-<*12> = ADD _j<6>, 1                                          #44
   _j<*7>      = ASSIGN tv114-<12>                                     #44
   tv115-<*13> = ASSIGN _q<3>                                          #45
   [tv115-<13>] = ASSIGN 0                                             #45
   tv116-<*14> = MUL _j<7>, 4                                          #46
   tv117-<*15> = ADD _b<1>, tv116-<14>                                 #46
   tv119-<*16> = CMP(EQ) [tv117-<15>], 1                               #46
                 CBRANCH(EQ) tv119-<16>, $L7, $L6                      #46
==== Block 6 Pred(5) Succ(15,7) prev 5 next 7 pre 14 post 33 iDom 5 df 15,19
$L7:  (1 ref)                                                          #46
   tv120-<*17> = ADD _i<4>, _j<7>                                      #46
   tv121-<*18> = MUL tv120-<17>, 4                                     #46
   tv122-<*19> = ADD _a<2>, tv121-<18>                                 #46
   tv124-<*20> = CMP(EQ) [tv122-<19>], 1                               #46
                 CBRANCH(EQ) tv124-<20>, $L8, $L6                      #46
==== Block 7 Pred(6) Succ(15,8) prev 6 next 8 pre 15 post 32 iDom 6 df 15,19
$L8:  (1 ref)                                                          #46
   tv126-<*21> = SUB _i<4>, _j<7>                                      #46
   tv127-<*22> = ADD tv126-<21>, 7                                     #46
   tv128-<*23> = MUL tv127-<22>, 4                                     #46
   tv129-<*24> = ADD &_c, tv128-<23>                                   #46
   tv131-<*25> = CMP(EQ) [tv129-<24>], 1                               #46
                 CBRANCH(EQ) tv131-<25>, $L9, $L6                      #46
==== Block 8 Pred(7) Succ(13,9) prev 7 next 9 pre 16 post 31 iDom 7 df 15,19
$L9:  (1 ref)                                                          #46
   tv133-<*26> = MUL _i<4>, 4                                          #48
   tv134-<*27> = ADD &_x, tv133-<26>                                   #48
   [tv134-<27>] = ASSIGN _j<7>                                         #48
   tv136-<*28> = MUL _j<7>, 4                                          #49
   tv137-<*29> = ADD _b<1>, tv136-<28>                                 #49
   [tv137-<29>] = ASSIGN 0                                             #49
   tv139-<*30> = ADD _i<4>, _j<7>                                      #50
   tv140-<*31> = MUL tv139-<30>, 4                                     #50
   tv141-<*32> = ADD _a<2>, tv140-<31>                                       #50
   [tv141-<32>] = ASSIGN 0                                                   #50
   tv143-<*33> = SUB _i<4>, _j<7>                                            #51
   tv144-<*34> = ADD tv143-<33>, 7                                           #51
   tv145-<*35> = MUL tv144-<34>, 4                                           #51
   tv146-<*36> = ADD &_c, tv145-<35>                                         #51
   [tv146-<36>] = ASSIGN 0                                                   #51
   tv148-<*37> = CMP(LT) _i<4>, 8                                            #52
                 CBRANCH(LT) tv148-<37>, $L11, $L10                          #52
==== Block 9 Pred(8) Succ(10,17) prev 8 next 17 pre 21 post 30 iDom 8 df 14,
19
$L11:  (1 ref)                                                               #52
   tv149-<*38> = ADD _i<4>, 1                                                #54
   {-5}        = CALL _try, tv149-<38>, _q<3>, _a<2>, _b<1>, {-5} [Handler:
$L1]
#54
                 GOTO $L16                                                   #65
==== Block 17 Pred(9) Succ(19) prev 9 next 10 pre 28 post 29 iDom 9 df 19
$L1:  (1 ref)                                                                #37
                 UNWIND _try                                                 #37
==== Block 10 Pred(9) Succ(12,11) prev 17 next 11 pre 22 post 27 iDom 9 df 1
4
$L16:  (1 ref)                                                               #65
   tv151-<*39> = ASSIGN _q<3>                                                #55
   tv152-<*40> = CMP(EQ) [tv151-<39>], 0                                     #55
                 CBRANCH(EQ) tv152-<40>, $L13, $L12                          #55
==== Block 11 Pred(10) Succ(12) prev 10 next 12 pre 25 post 26 iDom 10 df 12
$L13:  (1 ref)                                                               #55
   tv153-<*41> = MUL _j<7>, 4                                                #57
   tv154-<*42> = ADD _b<1>, tv153-<41>                                       #57
   [tv154-<42>] = ASSIGN 1                                                   #57
   tv156-<*43> = ADD _i<4>, _j<7>                                            #58
   tv157-<*44> = MUL tv156-<43>, 4                                           #58
   tv158-<*45> = ADD _a<2>, tv157-<44>                                       #58
   [tv158-<45>] = ASSIGN 1                                                   #58
   tv160-<*46> = SUB _i<4>, _j<7>                                            #59
   tv161-<*47> = ADD tv160-<46>, 7                                           #59
   tv162-<*48> = MUL tv161-<47>, 4                                           #59
   tv163-<*49> = ADD &_c, tv162-<48>                                         #59
   [tv163-<49>] = ASSIGN 1                                                   #59
                 GOTO $L12                                                   #55
==== Block 12 Pred(11,10) Succ(14) prev 11 next 13 pre 23 post 24 iDom 10 df
 14
$L12:  (2 refs)                                                              #55
                 GOTO $L14                                                   #62
==== Block 13 Pred(8) Succ(14) prev 12 next 14 pre 17 post 20 iDom 8 df 14
$L10:  (1 ref)                                                               #52
   tv165-<*50> = ASSIGN _q<3>                                                #62
   [tv165-<50>] = ASSIGN 1                                                   #62
                 GOTO $L14                                                   #62
==== Block 14 Pred(13,12) Succ(15) prev 13 next 15 pre 18 post 19 iDom 8 df
15
$L14:  (2 refs)                                                              #62
```

```
                 GOTO $L6                                               #46
==== Block 15 Pred(14,7,6,5) Succ(3) prev 14 next 16 pre 12 post 13 iDom 5 d
f 3
$L6:  (4 refs)                                                          #46
                 GOTO $L2                                               #64
==== Block 16 Pred(4,3) Succ(18) prev 15 next 18 pre 4 post 9 iDom 3 df 19
$L3:  (2 refs)                                                          #42
                 GOTO $L15                                              #65
==== Block 18 Pred(16) Succ(19) prev 16 next 19 pre 5 post 8 iDom 16 df 19
$L15:  (1 ref)                                                          #65
                 EXITFUNC _try                                          #65
==== Block 19 Pred(18,17) Succ() prev 18 pre 6 post 7 iDom 3 df
                 END _try, {-7}                                         #65


IR after Ssa Info Destruction (flag Ssa)

   {-7}        = START _try                                             #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                      #37
   _j<*5>      = ASSIGN 0                                               #40
   t110        = ASSIGN _q                                              #41
   [t110]      = ASSIGN 0                                               #41
                 GOTO $L2                                               #42
$L2:  (2 refs)                                                          #42
   t111        = ASSIGN _q                                              #42
   t112        = CMP(EQ) [t111], 0                                      #42
                 CBRANCH(EQ) t112, $L4, $L3                             #42
$L4:  (1 ref)                                                           #42
   t113        = CMP(NE) _j, 8                                          #42
                 CBRANCH(NE) t113, $L5, $L3                             #42
$L5:  (1 ref)                                                           #42
   t114        = ADD _j, 1                                              #44
   _j<*7>      = ASSIGN t114                                            #44
   t115        = ASSIGN _q                                              #45
   [t115]      = ASSIGN 0                                               #45
   t116        = MUL _j, 4                                              #46
   t117        = ADD _b, t116                                           #46
   t119        = CMP(EQ) [t117], 1                                      #46
                 CBRANCH(EQ) t119, $L7, $L6                             #46
$L7:  (1 ref)                                                           #46
   t120        = ADD _i, _j                                             #46
   t121        = MUL t120, 4                                            #46
   t122        = ADD _a, t121                                           #46
   t124        = CMP(EQ) [t122], 1                                      #46
                 CBRANCH(EQ) t124, $L8, $L6                             #46
$L8:  (1 ref)                                                           #46
   t126        = SUB _i, _j                                             #46
   t127        = ADD t126, 7                                            #46
   t128        = MUL t127, 4                                            #46
   t129        = ADD &_c, t128                                          #46
   t131        = CMP(EQ) [t129], 1                                      #46
                 CBRANCH(EQ) t131, $L9, $L6                             #46
$L9:  (1 ref)                                                           #46
```

```
  t133        = MUL _i, 4                                           #48
  t134        = ADD &_x, t133                                       #48
  [t134]      = ASSIGN _j                                           #48
  t136        = MUL _j, 4                                           #49
  t137        = ADD _b, t136                                        #49
  [t137]      = ASSIGN 0                                            #49
  t139        = ADD _i, _j                                          #50
  t140        = MUL t139, 4                                         #50
  t141        = ADD _a, t140                                        #50
  [t141]      = ASSIGN 0                                            #50
  t143        = SUB _i, _j                                          #51
  t144        = ADD t143, 7                                         #51
  t145        = MUL t144, 4                                         #51
  t146        = ADD &_c, t145                                       #51
  [t146]      = ASSIGN 0                                            #51
  t148        = CMP(LT) _i, 8                                       #52
                CBRANCH(LT) t148, $L11, $L10                        #52
$L11:  (1 ref)                                                      #52
  t149        = ADD _i, 1                                           #54
  {-5}        = CALL _try, t149, _q, _a, _b, {-5} [Handler: $L1]    #54
                GOTO $L16                                           #65
$L16:  (1 ref)                                                      #65
  t151        = ASSIGN _q                                           #55
  t152        = CMP(EQ) [t151], 0                                   #55
                CBRANCH(EQ) t152, $L13, $L12                        #55
$L13:  (1 ref)                                                      #55
  t153        = MUL _j, 4                                           #57
  t154        = ADD _b, t153                                        #57
  [t154]      = ASSIGN 1                                            #57
  t156        = ADD _i, _j                                          #58
  t157        = MUL t156, 4                                         #58
  t158        = ADD _a, t157                                        #58
  [t158]      = ASSIGN 1                                            #58
  t160        = SUB _i, _j                                          #59
  t161        = ADD t160, 7                                         #59
  t162        = MUL t161, 4                                         #59
  t163        = ADD &_c, t162                                       #59
  [t163]      = ASSIGN 1                                            #59
                GOTO $L12                                           #55
$L12:  (2 refs)                                                     #55
                GOTO $L14                                           #62
$L10:  (1 ref)                                                      #52
  t165        = ASSIGN _q                                           #62
  [t165]      = ASSIGN 1                                            #62
                GOTO $L14                                           #62
$L14:  (2 refs)                                                     #62
                GOTO $L6                                            #46
$L6:  (4 refs)                                                      #46
                GOTO $L2                                            #64
$L3:  (2 refs)                                                      #42
                GOTO $L15                                           #65
$L1:  (1 ref)                                                       #37
                UNWIND _try                                         #37
```

```
$L15:  (1 ref)                                                            #65
                 EXITFUNC _try                                            #65
                 END _try, {-7}                                           #65


IR after Lower (flag Lower)

   {-7}        = START _try                                               #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                        #37
                 PROLOGEND                                                #37
   _j[_FP]     = mov 0                                                    #40
   t110(_rd)   = mov _q[_FP]                                              #41
   [t110(_rd)] = mov 0                                                    #41
                 jmp $L2                                                  #42
$L2:  (2 refs)                                                            #42
   t111(_rd)   = mov _q[_FP]                                              #42
   t112(EFLAGS) = cmp(EQ) [t111(_rd)], 0                                  #42
                 jcc(EQ) t112(EFLAGS), $L4, $L3                           #42
$L4:  (1 ref)                                                             #42
   t113(EFLAGS) = cmp(NE) _j[_FP], 8                                      #42
                 jcc(NE) t113(EFLAGS), $L5, $L3                           #42
$L5:  (1 ref)                                                             #42
   tv114-(_rd) = mov 1                                                    #44
   tv114-(_rd)<*12>, EFLAGS = add tv114-(_rd), _j[_FP]                    #44
   _j[_FP]     = mov tv114-(_rd)                                          #44
   t115(_rd)   = mov _q[_FP]                                              #45
   [t115(_rd)] = mov 0                                                    #45
   t116(_rd), EFLAGS = imul _j[_FP], 4                                    #46
   tv117-(_rd) = mov t116(_rd)                                            #46
   tv117-(_rd)<*15>, EFLAGS = add tv117-(_rd), _b[_FP]                    #46
   t119(EFLAGS) = cmp(EQ) [tv117-(_rd)], 1                                #46
                 jcc(EQ) t119(EFLAGS), $L7, $L6                           #46
$L7:  (1 ref)                                                             #46
   tv120-(_rd) = mov _i[_FP]                                              #46
   tv120-(_rd)<*17>, EFLAGS = add tv120-(_rd), _j[_FP]                    #46
   t121(_rd), EFLAGS = imul tv120-(_rd), 4                                #46
   tv122-(_rd) = mov t121(_rd)                                            #46
   tv122-(_rd)<*19>, EFLAGS = add tv122-(_rd), _a[_FP]                    #46
   t124(EFLAGS) = cmp(EQ) [tv122-(_rd)], 1                                #46
                 jcc(EQ) t124(EFLAGS), $L8, $L6                           #46
$L8:  (1 ref)                                                             #46
   tv126-(_rd) = mov _i[_FP]                                              #46
   tv126-(_rd)<*21>, EFLAGS = sub tv126-(_rd), _j[_FP]                    #46
   tv127-(_rd) = mov tv126-(_rd)                                          #46
   tv127-(_rd)<*22>, EFLAGS = add tv127-(_rd), 7                          #46
   t128(_rd), EFLAGS = imul tv127-(_rd), 4                                #46
   tv129-(_rd) = mov t128(_rd)                                            #46
   tv129-(_rd)<*24>, EFLAGS = add tv129-(_rd), &_c                        #46
   t131(EFLAGS) = cmp(EQ) [tv129-(_rd)], 1                                #46
                 jcc(EQ) t131(EFLAGS), $L9, $L6                           #46
$L9:  (1 ref)                                                             #46
   t133(_rd), EFLAGS = imul _i[_FP], 4                                    #48
   tv134-(_rd) = mov t133(_rd)                                            #48
   tv134-(_rd)<*27>, EFLAGS = add tv134-(_rd), &_x                      #48
   t169(_rd)   = mov _j[_FP]                                            #48
   [tv134-(_rd)] = mov t169(_rd)                                        #48
   t136(_rd), EFLAGS = imul _j[_FP], 4                                  #49
   tv137-(_rd) = mov t136(_rd)                                          #49
   tv137-(_rd)<*29>, EFLAGS = add tv137-(_rd), _b[_FP]                  #49
   [tv137-(_rd)] = mov 0                                                #49
   tv139-(_rd) = mov _i[_FP]                                            #50
   tv139-(_rd)<*30>, EFLAGS = add tv139-(_rd), _j[_FP]                  #50
   t140(_rd), EFLAGS = imul tv139-(_rd), 4                              #50
   tv141-(_rd) = mov t140(_rd)                                          #50
   tv141-(_rd)<*32>, EFLAGS = add tv141-(_rd), _a[_FP]                  #50
   [tv141-(_rd)] = mov 0                                                #50
   tv143-(_rd) = mov _i[_FP]                                            #51
   tv143-(_rd)<*33>, EFLAGS = sub tv143-(_rd), _j[_FP]                  #51
   tv144-(_rd) = mov tv143-(_rd)                                        #51
   tv144-(_rd)<*34>, EFLAGS = add tv144-(_rd), 7                        #51
   t145(_rd), EFLAGS = imul tv144-(_rd), 4                              #51
   tv146-(_rd) = mov t145(_rd)                                          #51
   tv146-(_rd)<*36>, EFLAGS = add tv146-(_rd), &_c                      #51
   [tv146-(_rd)] = mov 0                                                #51
   t148(EFLAGS) = cmp(LT) _i[_FP], 8                                    #52
                 jcc(LT) t148(EFLAGS), $L11, $L10                       #52
$L11:  (1 ref)                                                          #52
   tv149-(_rd) = mov 1                                                  #54
   tv149-(_rd)<*38>, EFLAGS = add tv149-(_rd), _i[_FP]                  #54
   [ESP], {ESP} = push _b[_FP], {ESP}                                   #54
   [ESP], {ESP} = push _a[_FP], {ESP}                                   #54
   [ESP], {ESP} = push _q[_FP], {ESP}                                   #54
   [ESP], {ESP} = push tv149-(_rd), {ESP}                               #54
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
    #54
   ESP, EFLAGS = add ESP, 16(0x00000010)                                #54
                 jmp $L16                                               #65
$L16:  (1 ref)                                                          #65
   t151(_rd)   = mov _q[_FP]                                            #55
   t152(EFLAGS) = cmp(EQ) [t151(_rd)], 0                                #55
                 jcc(EQ) t152(EFLAGS), $L13, $L12                       #55
$L13:  (1 ref)                                                          #55
   t153(_rd), EFLAGS = imul _j[_FP], 4                                  #57
   tv154-(_rd) = mov t153(_rd)                                          #57
   tv154-(_rd)<*42>, EFLAGS = add tv154-(_rd), _b[_FP]                  #57
   [tv154-(_rd)] = mov 1                                                #57
   tv156-(_rd) = mov _i[_FP]                                            #58
   tv156-(_rd)<*43>, EFLAGS = add tv156-(_rd), _j[_FP]                  #58
   t157(_rd), EFLAGS = imul tv156-(_rd), 4                              #58
   tv158-(_rd) = mov t157(_rd)                                          #58
   tv158-(_rd)<*45>, EFLAGS = add tv158-(_rd), _a[_FP]                  #58
   [tv158-(_rd)] = mov 1                                                #58
   tv160-(_rd) = mov _i[_FP]                                            #59
   tv160-(_rd)<*46>, EFLAGS = sub tv160-(_rd), _j[_FP]                  #59
   tv161-(_rd) = mov tv160-(_rd)                                        #59
   tv161-(_rd)<*47>, EFLAGS = add tv161-(_rd), 7                        #59
   t162(_rd), EFLAGS = imul tv161-(_rd), 4                              #59
   tv163-(_rd) = mov t162(_rd)                                          #59
   tv163-(_rd)<*49>, EFLAGS = add tv163-(_rd), &_c                      #59
   [tv163-(_rd)] = mov 1                                                #59
                 jmp $L12                                               #55
$L12:  (2 refs)                                                         #55
                 jmp $L14                                               #62
$L10:  (1 ref)                                                          #52
   t165(_rd)   = mov _q[_FP]                                            #62
   [t165(_rd)] = mov 1                                                  #62
                 jmp $L14                                               #62
$L14:  (2 refs)                                                         #62
                 jmp $L6                                                #46
$L6:  (4 refs)                                                          #46
                 jmp $L2                                                #64
$L3:  (2 refs)                                                          #42
                 jmp $L15                                               #65
$L1:  (1 ref)                                                           #37
                 UNWIND _try                                            #37
$L15:  (1 ref)                                                          #65
                 EPILOGSTART                                            #65
                 EXITFUNC _try                                          #65
                 END _try, {-7}                                         #65


IR after Linear Scan Register Allocation (flag LinearScan)

   {-7}        = START _try                                             #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                      #37
                 PROLOGEND                                              #37
   _j[_FP]     = mov 0                                                  #40
   t110(EAX)   = mov _q[_FP]                                            #41
   [t110(EAX)] = mov 0                                                  #41
                 jmp $L2                                                #42
$L2:  (2 refs)                                                          #42
   t111(EAX)   = mov _q[_FP]                                            #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                                #42
                 jcc(EQ) t112(EFLAGS), $L4, $L3                         #42
$L4:  (1 ref)                                                           #42
   t113(EFLAGS) = cmp(NE) _j[_FP], 8                                    #42
                 jcc(NE) t113(EFLAGS), $L5, $L3                         #42
$L5:  (1 ref)                                                           #42
   tv114-(EAX) = mov 1                                                  #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[_FP]                  #44
   _j[_FP]     = mov tv114-(EAX)                                        #44
   t115(EAX)   = mov _q[_FP]                                            #45
   [t115(EAX)] = mov 0                                                  #45
   t116(EAX), EFLAGS = imul _j[_FP], 4                                  #46
   tv117-(EAX) = mov t116(EAX)                                          #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[_FP]                  #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                              #46
```

```
                jcc(EQ) t119(EFLAGS), $L7, $L6                       #46
$L7:  (1 ref)                                                         #46
  tv120-(EAX) = mov _i[_FP]                                           #46
  tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[_FP]                 #46
  t121(EAX), EFLAGS = imul tv120-(EAX), 4                             #46
  tv122-(EAX) = mov t121(EAX)                                         #46
  tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[_FP]                 #46
  t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                             #46
                jcc(EQ) t124(EFLAGS), $L8, $L6                       #46
$L8:  (1 ref)                                                         #46
  tv126-(EAX) = mov _i[_FP]                                           #46
  tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[_FP]                 #46
  tv127-(EAX) = mov tv126-(EAX)                                       #46
  tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                       #46
  t128(EAX), EFLAGS = imul tv127-(EAX), 4                             #46
  tv129-(EAX) = mov t128(EAX)                                         #46
  tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                     #46
  t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                             #46
                jcc(EQ) t131(EFLAGS), $L9, $L6                       #46
$L9:  (1 ref)                                                         #46
  t133(EAX), EFLAGS = imul _i[_FP], 4                                 #48
  tv134-(EAX) = mov t133(EAX)                                         #48
  tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                     #48
  t169(ECX)   = mov _j[_FP]                                           #48
  [tv134-(EAX)] = mov t169(ECX)                                       #48
  t136(EAX), EFLAGS = imul _j[_FP], 4                                 #49
  tv137-(EAX) = mov t136(EAX)                                         #49
  tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[_FP]                 #49
  [tv137-(EAX)] = mov 0                                               #49
  tv139-(EAX) = mov _i[_FP]                                           #50
  tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[_FP]                 #50
  t140(EAX), EFLAGS = imul tv139-(EAX), 4                             #50
  tv141-(EAX) = mov t140(EAX)                                         #50
  tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[_FP]                 #50
  [tv141-(EAX)] = mov 0                                               #50
  tv143-(EAX) = mov _i[_FP]                                           #51
  tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[_FP]                 #51
  tv144-(EAX) = mov tv143-(EAX)                                       #51
  tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                       #51
  t145(EAX), EFLAGS = imul tv144-(EAX), 4                             #51
  tv146-(EAX) = mov t145(EAX)                                         #51
  tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                     #51
  [tv146-(EAX)] = mov 0                                               #51
  t148(EFLAGS) = cmp(LT) _i[_FP], 8                                   #52
                jcc(LT) t148(EFLAGS), $L11, $L10                     #52
$L11:  (1 ref)                                                        #52
  tv149-(EAX) = mov 1                                                 #54
  tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[_FP]                 #54
  [ESP], {ESP} = push _b[_FP], {ESP}                                  #54
  [ESP], {ESP} = push _a[_FP], {ESP}                                  #54
  [ESP], {ESP} = push _q[_FP], {ESP}                                  #54
  [ESP], {ESP} = push tv149-(EAX), {ESP}                              #54
  {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
```

```
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
    #54
                 jmp $L17                                               #65
$L17:  (1 ref)                                                          #65
   ESP, EFLAGS = add ESP, 16(0x00000010)                                #54
                 jmp $L16                                               #65
$L16:  (1 ref)                                                          #65
   t151(EAX)    = mov _q[_FP]                                           #55
   t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                #55
                 jcc(EQ) t152(EFLAGS), $L13, $L12                       #55
$L13:  (1 ref)                                                          #55
   t153(EAX), EFLAGS = imul _j[_FP], 4                                  #57
   tv154-(EAX) = mov t153(EAX)                                          #57
   tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[_FP]                  #57
   [tv154-(EAX)] = mov 1                                                #57
   tv156-(EAX) = mov _i[_FP]                                            #58
   tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[_FP]                  #58
   t157(EAX), EFLAGS = imul tv156-(EAX), 4                              #58
   tv158-(EAX) = mov t157(EAX)                                          #58
   tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[_FP]                  #58
   [tv158-(EAX)] = mov 1                                                #58
   tv160-(EAX) = mov _i[_FP]                                            #59
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[_FP]                  #59
   tv161-(EAX) = mov tv160-(EAX)                                        #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                        #59
   t162(EAX), EFLAGS = imul tv161-(EAX), 4                              #59
   tv163-(EAX) = mov t162(EAX)                                          #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                      #59
   [tv163-(EAX)] = mov 1                                                #59
                 jmp $L12                                               #55
$L12:  (2 refs)                                                         #55
                 jmp $L14                                               #62
$L10:  (1 ref)                                                          #52
   t165(EAX)    = mov _q[_FP]                                           #62
   [t165(EAX)] = mov 1                                                  #62
                 jmp $L14                                               #62
$L14:  (2 refs)                                                         #62
                 jmp $L6                                                #46
$L6:  (4 refs)                                                          #46
                 jmp $L2                                                #64
$L3:  (2 refs)                                                          #42
                 jmp $L15                                               #65
$L1:  (1 ref)                                                           #37
                 UNWIND _try                                            #37
$L15:  (1 ref)                                                          #65
                 EPILOGSTART                                            #65
                 EXITFUNC _try                                          #65
                 END _try, {-7}                                         #65


IR after Stack Allocation (flag StackAlloc)
```

```
   {-7}        = START _try                                             #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                      #37
                 PROLOGEND                                              #37
   _j[_FP]     = mov 0                                                  #40
   t110(EAX)   = mov _q[_FP]                                            #41
   [t110(EAX)] = mov 0                                                  #41
                 jmp $L2                                                #42
$L2:  (2 refs)                                                          #42
   t111(EAX)   = mov _q[_FP]                                            #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                                #42
                 jcc(EQ) t112(EFLAGS), $L4, $L3                         #42
$L4:  (1 ref)                                                           #42
   t113(EFLAGS) = cmp(NE) _j[_FP], 8                                    #42
                 jcc(NE) t113(EFLAGS), $L5, $L3                         #42
$L5:  (1 ref)                                                           #42
   tv114-(EAX) = mov 1                                                  #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[_FP]                  #44
   _j[_FP]     = mov tv114-(EAX)                                        #44
   t115(EAX)   = mov _q[_FP]                                            #45
   [t115(EAX)] = mov 0                                                  #45
   t116(EAX), EFLAGS = imul _j[_FP], 4                                  #46
   tv117-(EAX) = mov t116(EAX)                                          #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[_FP]                  #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                              #46
                 jcc(EQ) t119(EFLAGS), $L7, $L6                         #46
$L7:  (1 ref)                                                           #46
   tv120-(EAX) = mov _i[_FP]                                            #46
   tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[_FP]                  #46
   t121(EAX), EFLAGS = imul tv120-(EAX), 4                              #46
   tv122-(EAX) = mov t121(EAX)                                          #46
   tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[_FP]                  #46
   t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                              #46
                 jcc(EQ) t124(EFLAGS), $L8, $L6                         #46
$L8:  (1 ref)                                                           #46
   tv126-(EAX) = mov _i[_FP]                                            #46
   tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[_FP]                  #46
   tv127-(EAX) = mov tv126-(EAX)                                        #46
   tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                        #46
   t128(EAX), EFLAGS = imul tv127-(EAX), 4                              #46
   tv129-(EAX) = mov t128(EAX)                                          #46
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                      #46
   t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                              #46
                 jcc(EQ) t131(EFLAGS), $L9, $L6                         #46
$L9:  (1 ref)                                                           #46
   t133(EAX), EFLAGS = imul _i[_FP], 4                                  #48
   tv134-(EAX) = mov t133(EAX)                                          #48
   tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                      #48
   t169(ECX)   = mov _j[_FP]                                            #48
   [tv134-(EAX)] = mov t169(ECX)                                        #48
   t136(EAX), EFLAGS = imul _j[_FP], 4                                  #49
   tv137-(EAX) = mov t136(EAX)                                          #49
   tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[_FP]                  #49
   [tv137-(EAX)] = mov 0                                                #49
   tv139-(EAX) = mov _i[_FP]                                              #50
   tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[_FP]                    #50
   t140(EAX), EFLAGS = imul tv139-(EAX), 4                                #50
   tv141-(EAX) = mov t140(EAX)                                            #50
   tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[_FP]                    #50
   [tv141-(EAX)] = mov 0                                                  #50
   tv143-(EAX) = mov _i[_FP]                                              #51
   tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[_FP]                    #51
   tv144-(EAX) = mov tv143-(EAX)                                          #51
   tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                          #51
   t145(EAX), EFLAGS = imul tv144-(EAX), 4                                #51
   tv146-(EAX) = mov t145(EAX)                                            #51
   tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                        #51
   [tv146-(EAX)] = mov 0                                                  #51
   t148(EFLAGS) = cmp(LT) _i[_FP], 8                                      #52
                 jcc(LT) t148(EFLAGS), $L11, $L10                         #52
$L11:  (1 ref)                                                            #52
   tv149-(EAX) = mov 1                                                    #54
   tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[_FP]                    #54
   [ESP], {ESP} = push _b[_FP], {ESP}                                     #54
   [ESP], {ESP} = push _a[_FP], {ESP}                                     #54
   [ESP], {ESP} = push _q[_FP], {ESP}                                     #54
   [ESP], {ESP} = push tv149-(EAX), {ESP}                                 #54
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
    #54
                 jmp $L17                                                 #65
$L17:  (1 ref)                                                            #65
   ESP, EFLAGS = add ESP, 16(0x00000010)                                  #54
                 jmp $L16                                                 #65
$L16:  (1 ref)                                                            #65
   t151(EAX)    = mov _q[_FP]                                             #55
   t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                  #55
                 jcc(EQ) t152(EFLAGS), $L13, $L12                         #55
$L13:  (1 ref)                                                            #55
   t153(EAX), EFLAGS = imul _j[_FP], 4                                    #57
   tv154-(EAX) = mov t153(EAX)                                            #57
   tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[_FP]                    #57
   [tv154-(EAX)] = mov 1                                                  #57
   tv156-(EAX) = mov _i[_FP]                                              #58
   tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[_FP]                    #58
   t157(EAX), EFLAGS = imul tv156-(EAX), 4                                #58
   tv158-(EAX) = mov t157(EAX)                                            #58
   tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[_FP]                    #58
   [tv158-(EAX)] = mov 1                                                  #58
   tv160-(EAX) = mov _i[_FP]                                              #59
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[_FP]                    #59
   tv161-(EAX) = mov tv160-(EAX)                                          #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                          #59
   t162(EAX), EFLAGS = imul tv161-(EAX), 4                                #59
   tv163-(EAX) = mov t162(EAX)                                            #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                        #59
   [tv163-(EAX)] = mov 1                                                #59
                 jmp $L12                                               #55
$L12:  (2 refs)                                                         #55
                 jmp $L14                                               #62
$L10:  (1 ref)                                                          #52
   t165(EAX)   = mov _q[_FP]                                            #62
   [t165(EAX)] = mov 1                                                  #62
                 jmp $L14                                               #62
$L14:  (2 refs)                                                         #62
                 jmp $L6                                                #46
$L6:  (4 refs)                                                          #46
                 jmp $L2                                                #64
$L3:  (2 refs)                                                          #42
                 jmp $L15                                               #65
$L1:  (1 ref)                                                           #37
                 UNWIND _try                                            #37
$L15:  (1 ref)                                                          #65
                 EPILOGSTART                                            #65
                 EXITFUNC _try                                          #65
                 END _try, {-7}                                         #65


IR after Frame Generation (flag Frame)

   {-7}        = START _try                                             #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                      #37
   [ESP], {ESP} = push EBP, {ESP}                                       #37
   EBP         = mov ESP                                                #37
   [ESP], {ESP} = push ESP, {ESP}                                       #37
                 PROLOGEND                                              #37
   _j[EBP]     = mov 0                                                  #40
   t110(EAX)   = mov _q[EBP]                                            #41
   [t110(EAX)] = mov 0                                                  #41
                 jmp $L2                                                #42
$L2:  (2 refs)                                                          #42
   t111(EAX)   = mov _q[EBP]                                            #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                                #42
                 jcc(EQ) t112(EFLAGS), $L4, $L3                         #42
$L4:  (1 ref)                                                           #42
   t113(EFLAGS) = cmp(NE) _j[EBP], 8                                    #42
                 jcc(NE) t113(EFLAGS), $L5, $L3                         #42
$L5:  (1 ref)                                                           #42
   tv114-(EAX) = mov 1                                                  #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[EBP]                  #44
   _j[EBP]     = mov tv114-(EAX)                                        #44
   t115(EAX)   = mov _q[EBP]                                            #45
   [t115(EAX)] = mov 0                                                  #45
   t116(EAX), EFLAGS = imul _j[EBP], 4                                  #46
   tv117-(EAX) = mov t116(EAX)                                          #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[EBP]                  #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                              #46
                 jcc(EQ) t119(EFLAGS), $L7, $L6                         #46
$L7:  (1 ref)                                                           #46
```

```
   tv120-(EAX) = mov _i[EBP]                                           #46
   tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[EBP]                 #46
   t121(EAX), EFLAGS = imul tv120-(EAX), 4                             #46
   tv122-(EAX) = mov t121(EAX)                                         #46
   tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[EBP]                 #46
   t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                             #46
                  jcc(EQ) t124(EFLAGS), $L8, $L6                       #46
$L8:  (1 ref)                                                          #46
   tv126-(EAX) = mov _i[EBP]                                           #46
   tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[EBP]                 #46
   tv127-(EAX) = mov tv126-(EAX)                                       #46
   tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                       #46
   t128(EAX), EFLAGS = imul tv127-(EAX), 4                             #46
   tv129-(EAX) = mov t128(EAX)                                         #46
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                     #46
   t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                             #46
                  jcc(EQ) t131(EFLAGS), $L9, $L6                       #46
$L9:  (1 ref)                                                          #46
   t133(EAX), EFLAGS = imul _i[EBP], 4                                 #48
   tv134-(EAX) = mov t133(EAX)                                         #48
   tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                     #48
   t169(ECX)   = mov _j[EBP]                                           #48
   [tv134-(EAX)] = mov t169(ECX)                                       #48
   t136(EAX), EFLAGS = imul _j[EBP], 4                                 #49
   tv137-(EAX) = mov t136(EAX)                                         #49
   tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[EBP]                 #49
   [tv137-(EAX)] = mov 0                                               #49
   tv139-(EAX) = mov _i[EBP]                                           #50
   tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[EBP]                 #50
   t140(EAX), EFLAGS = imul tv139-(EAX), 4                             #50
   tv141-(EAX) = mov t140(EAX)                                         #50
   tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[EBP]                 #50
   [tv141-(EAX)] = mov 0                                               #50
   tv143-(EAX) = mov _i[EBP]                                           #51
   tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[EBP]                 #51
   tv144-(EAX) = mov tv143-(EAX)                                       #51
   tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                       #51
   t145(EAX), EFLAGS = imul tv144-(EAX), 4                             #51
   tv146-(EAX) = mov t145(EAX)                                         #51
   tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                     #51
   [tv146-(EAX)] = mov 0                                               #51
   t148(EFLAGS) = cmp(LT) _i[EBP], 8                                   #52
                  jcc(LT) t148(EFLAGS), $L11, $L10                     #52
$L11:  (1 ref)                                                         #52
   tv149-(EAX) = mov 1                                                 #54
   tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[EBP]                 #54
   [ESP], {ESP} = push _b[EBP], {ESP}                                  #54
   [ESP], {ESP} = push _a[EBP], {ESP}                                  #54
   [ESP], {ESP} = push _q[EBP], {ESP}                                  #54
   [ESP], {ESP} = push tv149-(EAX), {ESP}                              #54
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
```

```
    #54
                 jmp $L17                                                 #65
$L17:  (1 ref)                                                            #65
   ESP, EFLAGS = add ESP, 16(0x00000010)                                  #54
                 jmp $L16                                                 #65
$L16:  (1 ref)                                                            #65
   t151(EAX)    = mov _q[EBP]                                             #55
   t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                  #55
                 jcc(EQ) t152(EFLAGS), $L13, $L12                         #55
$L13:  (1 ref)                                                            #55
   t153(EAX), EFLAGS = imul _j[EBP], 4                                    #57
   tv154-(EAX) = mov t153(EAX)                                            #57
   tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[EBP]                    #57
   [tv154-(EAX)] = mov 1                                                  #57
   tv156-(EAX) = mov _i[EBP]                                              #58
   tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[EBP]                    #58
   t157(EAX), EFLAGS = imul tv156-(EAX), 4                                #58
   tv158-(EAX) = mov t157(EAX)                                            #58
   tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[EBP]                    #58
   [tv158-(EAX)] = mov 1                                                  #58
   tv160-(EAX) = mov _i[EBP]                                              #59
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[EBP]                    #59
   tv161-(EAX) = mov tv160-(EAX)                                          #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                          #59
   t162(EAX), EFLAGS = imul tv161-(EAX), 4                                #59
   tv163-(EAX) = mov t162(EAX)                                            #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                        #59
   [tv163-(EAX)] = mov 1                                                  #59
                 jmp $L12                                                 #55
$L12:  (2 refs)                                                           #55
                 jmp $L14                                                 #62
$L10:  (1 ref)                                                            #52
   t165(EAX)    = mov _q[EBP]                                             #62
   [t165(EAX)] = mov 1                                                    #62
                 jmp $L14                                                 #62
$L14:  (2 refs)                                                           #62
                 jmp $L6                                                  #46
$L6:  (4 refs)                                                            #46
                 jmp $L2                                                  #64
$L3:  (2 refs)                                                            #42
                 jmp $L15                                                 #65
$L1:  (1 ref)                                                             #37
                 UNWIND _try                                              #37
$L15:  (1 ref)                                                            #65
                 EPILOGSTART                                              #65
   ESP          = mov EBP                                                 #65
   EBP, {ESP}   = pop [ESP], {ESP}                                        #65
   {ESP}        = ret {ESP}                                               #65
                 EXITFUNC _try                                            #65
                 END _try, {-7}                                           #65
```

IR after Switch Lower (flag SwitchLower)

```
   {-7}          = START _try                                              #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                         #37
   [ESP], {ESP} = push EBP, {ESP}                                          #37
   EBP           = mov ESP                                                 #37
   [ESP], {ESP} = push ESP, {ESP}                                          #37
                   PROLOGEND                                               #37
   _j[EBP]       = mov 0                                                   #40
   t110(EAX)     = mov _q[EBP]                                             #41
   [t110(EAX)] = mov 0                                                     #41
                   jmp $L2                                                 #42
$L2:  (2 refs)                                                             #42
   t111(EAX)     = mov _q[EBP]                                             #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                                   #42
                   jcc(EQ) t112(EFLAGS), $L4, $L3                          #42
$L4:  (1 ref)                                                              #42
   t113(EFLAGS) = cmp(NE) _j[EBP], 8                                       #42
                   jcc(NE) t113(EFLAGS), $L5, $L3                          #42
$L5:  (1 ref)                                                              #42
   tv114-(EAX) = mov 1                                                     #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[EBP]                     #44
   _j[EBP]       = mov tv114-(EAX)                                         #44
   t115(EAX)     = mov _q[EBP]                                             #45
   [t115(EAX)] = mov 0                                                     #45
   t116(EAX), EFLAGS = imul _j[EBP], 4                                     #46
   tv117-(EAX) = mov t116(EAX)                                             #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[EBP]                     #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                                 #46
                   jcc(EQ) t119(EFLAGS), $L7, $L6                          #46
$L7:  (1 ref)                                                              #46
   tv120-(EAX) = mov _i[EBP]                                               #46
   tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[EBP]                     #46
   t121(EAX), EFLAGS = imul tv120-(EAX), 4                                 #46
   tv122-(EAX) = mov t121(EAX)                                             #46
   tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[EBP]                     #46
   t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                                 #46
                   jcc(EQ) t124(EFLAGS), $L8, $L6                          #46
$L8:  (1 ref)                                                              #46
   tv126-(EAX) = mov _i[EBP]                                               #46
   tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[EBP]                     #46
   tv127-(EAX) = mov tv126-(EAX)                                           #46
   tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                           #46
   t128(EAX), EFLAGS = imul tv127-(EAX), 4                                 #46
   tv129-(EAX) = mov t128(EAX)                                             #46
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                         #46
   t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                                 #46
                   jcc(EQ) t131(EFLAGS), $L9, $L6                          #46
$L9:  (1 ref)                                                              #46
   t133(EAX), EFLAGS = imul _i[EBP], 4                                     #48
   tv134-(EAX) = mov t133(EAX)                                             #48
   tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                         #48
   t169(ECX)     = mov _j[EBP]                                             #48
   [tv134-(EAX)] = mov t169(ECX)                                           #48
   t136(EAX), EFLAGS = imul _j[EBP], 4                                   #49
   tv137-(EAX) = mov t136(EAX)                                           #49
   tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[EBP]                   #49
   [tv137-(EAX)] = mov 0                                                 #49
   tv139-(EAX) = mov _i[EBP]                                             #50
   tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[EBP]                   #50
   t140(EAX), EFLAGS = imul tv139-(EAX), 4                               #50
   tv141-(EAX) = mov t140(EAX)                                           #50
   tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[EBP]                   #50
   [tv141-(EAX)] = mov 0                                                 #50
   tv143-(EAX) = mov _i[EBP]                                             #51
   tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[EBP]                   #51
   tv144-(EAX) = mov tv143-(EAX)                                         #51
   tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                         #51
   t145(EAX), EFLAGS = imul tv144-(EAX), 4                               #51
   tv146-(EAX) = mov t145(EAX)                                           #51
   tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                       #51
   [tv146-(EAX)] = mov 0                                                 #51
   t148(EFLAGS) = cmp(LT) _i[EBP], 8                                     #52
                  jcc(LT) t148(EFLAGS), $L11, $L10                       #52
$L11:  (1 ref)                                                           #52
   tv149-(EAX) = mov 1                                                   #54
   tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[EBP]                   #54
   [ESP], {ESP} = push _b[EBP], {ESP}                                    #54
   [ESP], {ESP} = push _a[EBP], {ESP}                                    #54
   [ESP], {ESP} = push _q[EBP], {ESP}                                    #54
   [ESP], {ESP} = push tv149-(EAX), {ESP}                                #54
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
    #54
                  jmp $L17                                               #65
$L17:  (1 ref)                                                           #65
   ESP, EFLAGS = add ESP, 16(0x00000010)                                 #54
                  jmp $L16                                               #65
$L16:  (1 ref)                                                           #65
   t151(EAX)    = mov _q[EBP]                                            #55
   t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                 #55
                  jcc(EQ) t152(EFLAGS), $L13, $L12                       #55
$L13:  (1 ref)                                                           #55
   t153(EAX), EFLAGS = imul _j[EBP], 4                                   #57
   tv154-(EAX) = mov t153(EAX)                                           #57
   tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[EBP]                   #57
   [tv154-(EAX)] = mov 1                                                 #57
   tv156-(EAX) = mov _i[EBP]                                             #58
   tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[EBP]                   #58
   t157(EAX), EFLAGS = imul tv156-(EAX), 4                               #58
   tv158-(EAX) = mov t157(EAX)                                           #58
   tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[EBP]                   #58
   [tv158-(EAX)] = mov 1                                                 #58
   tv160-(EAX) = mov _i[EBP]                                             #59
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[EBP]                   #59
   tv161-(EAX) = mov tv160-(EAX)                                         #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                          #59
   t162(EAX), EFLAGS = imul tv161-(EAX), 4                                #59
   tv163-(EAX) = mov t162(EAX)                                            #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                        #59
   [tv163-(EAX)] = mov 1                                                  #59
                 jmp $L12                                                 #55
$L12:  (2 refs)                                                           #55
                 jmp $L14                                                 #62
$L10:  (1 ref)                                                            #52
   t165(EAX)    = mov _q[EBP]                                             #62
   [t165(EAX)] = mov 1                                                    #62
                 jmp $L14                                                 #62
$L14:  (2 refs)                                                           #62
                 jmp $L6                                                  #46
$L6:  (4 refs)                                                            #46
                 jmp $L2                                                  #64
$L3:  (2 refs)                                                            #42
                 jmp $L15                                                 #65
$L1:  (1 ref)                                                             #37
                 UNWIND _try                                              #37
$L15:  (1 ref)                                                            #65
                 EPILOGSTART                                              #65
   ESP          = mov EBP                                                 #65
   EBP, {ESP}   = pop [ESP], {ESP}                                        #65
   {ESP}        = ret {ESP}                                               #65
                 EXITFUNC _try                                            #65
                 END _try, {-7}                                           #65
```

IR after Block Layout (flag Block Layout)

```
   {-7}          = START _try                                             #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                        #37
   [ESP], {ESP} = push EBP, {ESP}                                         #37
   EBP          = mov ESP                                                 #37
   [ESP], {ESP} = push ESP, {ESP}                                         #37
                 PROLOGEND                                                #37
   _j[EBP]      = mov 0                                                   #40
   t110(EAX)    = mov _q[EBP]                                             #41
   [t110(EAX)] = mov 0                                                    #41
                 jmp $L2                                                  #42
$L2:  (2 refs)                                                            #42
   t111(EAX)    = mov _q[EBP]                                             #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                                  #42
                 jcc(EQ) t112(EFLAGS), $L4                                #42
                 jmp $L3                                                  #42
$L4:  (1 ref)                                                             #42
   t113(EFLAGS) = cmp(NE) _j[EBP], 8                                      #42
                 jcc(NE) t113(EFLAGS), $L5                                #42
                 jmp $L3                                                  #42
$L5:  (1 ref)                                                             #42
   tv114-(EAX) = mov 1                                                    #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[EBP]                    #44
```

```
    _j[EBP]      = mov tv114-(EAX)                                      #44
    t115(EAX)    = mov _q[EBP]                                          #45
    [t115(EAX)] = mov 0                                                 #45
    t116(EAX), EFLAGS = imul _j[EBP], 4                                 #46
    tv117-(EAX) = mov t116(EAX)                                         #46
    tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[EBP]                 #46
    t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                             #46
                   jcc(EQ) t119(EFLAGS), $L7                            #46
                   jmp $L6                                              #46
  $L7:  (1 ref)                                                         #46
    tv120-(EAX) = mov _i[EBP]                                           #46
    tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[EBP]                 #46
    t121(EAX), EFLAGS = imul tv120-(EAX), 4                             #46
    tv122-(EAX) = mov t121(EAX)                                         #46
    tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[EBP]                 #46
    t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                             #46
                   jcc(EQ) t124(EFLAGS), $L8                            #46
                   jmp $L6                                              #46
  $L8:  (1 ref)                                                         #46
    tv126-(EAX) = mov _i[EBP]                                           #46
    tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[EBP]                 #46
    tv127-(EAX) = mov tv126-(EAX)                                       #46
    tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                       #46
    t128(EAX), EFLAGS = imul tv127-(EAX), 4                             #46
    tv129-(EAX) = mov t128(EAX)                                         #46
    tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                     #46
    t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                             #46
                   jcc(EQ) t131(EFLAGS), $L9                            #46
                   jmp $L6                                              #46
  $L9:  (1 ref)                                                         #46
    t133(EAX), EFLAGS = imul _i[EBP], 4                                 #48
    tv134-(EAX) = mov t133(EAX)                                         #48
    tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                     #48
    t169(ECX)    = mov _j[EBP]                                          #48
    [tv134-(EAX)] = mov t169(ECX)                                       #48
    t136(EAX), EFLAGS = imul _j[EBP], 4                                 #49
    tv137-(EAX) = mov t136(EAX)                                         #49
    tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[EBP]                 #49
    [tv137-(EAX)] = mov 0                                               #49
    tv139-(EAX) = mov _i[EBP]                                           #50
    tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[EBP]                 #50
    t140(EAX), EFLAGS = imul tv139-(EAX), 4                             #50
    tv141-(EAX) = mov t140(EAX)                                         #50
    tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[EBP]                 #50
    [tv141-(EAX)] = mov 0                                               #50
    tv143-(EAX) = mov _i[EBP]                                           #51
    tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[EBP]                 #51
    tv144-(EAX) = mov tv143-(EAX)                                       #51
    tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                       #51
    t145(EAX), EFLAGS = imul tv144-(EAX), 4                             #51
    tv146-(EAX) = mov t145(EAX)                                         #51
    tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                     #51
    [tv146-(EAX)] = mov 0                                               #51
```

```
   t148(EFLAGS) = cmp(LT) _i[EBP], 8                                    #52
                 jcc(LT) t148(EFLAGS), $L11                              #52
                 jmp $L10                                                #52
$L11:  (1 ref)                                                          #52
   tv149-(EAX) = mov 1                                                  #54
   tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[EBP]                  #54
   [ESP], {ESP} = push _b[EBP], {ESP}                                   #54
   [ESP], {ESP} = push _a[EBP], {ESP}                                   #54
   [ESP], {ESP} = push _q[EBP], {ESP}                                   #54
   [ESP], {ESP} = push tv149-(EAX), {ESP}                               #54
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
    #54
                 jmp $L17                                                #65
$L17:  (1 ref)                                                          #65
   ESP, EFLAGS = add ESP, 16(0x00000010)                                #54
                 jmp $L16                                                #65
$L16:  (1 ref)                                                          #65
   t151(EAX)    = mov _q[EBP]                                           #55
   t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                #55
                 jcc(EQ) t152(EFLAGS), $L13                              #55
                 jmp $L12                                                #55
$L13:  (1 ref)                                                          #55
   t153(EAX), EFLAGS = imul _j[EBP], 4                                  #57
   tv154-(EAX) = mov t153(EAX)                                          #57
   tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[EBP]                  #57
   [tv154-(EAX)] = mov 1                                                #57
   tv156-(EAX) = mov _i[EBP]                                            #58
   tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[EBP]                  #58
   t157(EAX), EFLAGS = imul tv156-(EAX), 4                              #58
   tv158-(EAX) = mov t157(EAX)                                          #58
   tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[EBP]                  #58
   [tv158-(EAX)] = mov 1                                                #58
   tv160-(EAX) = mov _i[EBP]                                            #59
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[EBP]                  #59
   tv161-(EAX) = mov tv160-(EAX)                                        #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                        #59
   t162(EAX), EFLAGS = imul tv161-(EAX), 4                              #59
   tv163-(EAX) = mov t162(EAX)                                          #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                      #59
   [tv163-(EAX)] = mov 1                                                #59
                 jmp $L12                                                #55
$L12:  (2 refs)                                                         #55
                 jmp $L14                                                #62
$L10:  (1 ref)                                                          #52
   t165(EAX)    = mov _q[EBP]                                           #62
   [t165(EAX)] = mov 1                                                  #62
                 jmp $L14                                                #62
$L14:  (2 refs)                                                         #62
                 jmp $L6                                                 #46
$L6:  (4 refs)                                                          #46
                 jmp $L2                                                 #64
```

```
$L3:  (2 refs)                                                        #42
                 jmp $L15                                             #65
$L15:  (1 ref)                                                        #65
                 EPILOGSTART                                          #65
   ESP         = mov EBP                                              #65
   EBP, {ESP}  = pop [ESP], {ESP}                                     #65
   {ESP}       = ret {ESP}                                            #65
                 EXITFUNC _try                                        #65
$L1:  (1 ref)                                                         #37
                 UNWIND _try                                          #37
                 END _try, {-7}                                       #65
```

```
IR after Flow Optimization (flag FlowOpts)

   {-7}          = START _try                                         #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                    #37
   [ESP], {ESP} = push EBP, {ESP}                                     #37
   EBP          = mov ESP                                             #37
   [ESP], {ESP} = push ESP, {ESP}                                     #37
                  PROLOGEND                                           #37
   _j[EBP]      = mov 0                                               #40
   t110(EAX)    = mov _q[EBP]                                         #41
   [t110(EAX)] = mov 0                                                #41
$L2:  (6 refs)                                                        #42
   t111(EAX)    = mov _q[EBP]                                         #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                              #42
                  jcc(NE) t112(EFLAGS), $L15                          #42
   t113(EFLAGS) = cmp(NE) _j[EBP], 8                                  #42
                  jcc(EQ) t113(EFLAGS), $L15                          #42
   tv114-(EAX) = mov 1                                                #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[EBP]                #44
   _j[EBP]      = mov tv114-(EAX)                                     #44
   t115(EAX)    = mov _q[EBP]                                         #45
   [t115(EAX)] = mov 0                                                #45
   t116(EAX), EFLAGS = imul _j[EBP], 4                                #46
   tv117-(EAX) = mov t116(EAX)                                        #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[EBP]                #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                            #46
                  jcc(NE) t119(EFLAGS), $L2                           #46
   tv120-(EAX) = mov _i[EBP]                                          #46
   tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[EBP]                #46
   t121(EAX), EFLAGS = imul tv120-(EAX), 4                            #46
   tv122-(EAX) = mov t121(EAX)                                        #46
   tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[EBP]                #46
   t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                            #46
                  jcc(NE) t124(EFLAGS), $L2                           #46
   tv126-(EAX) = mov _i[EBP]                                          #46
   tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[EBP]                #46
   tv127-(EAX) = mov tv126-(EAX)                                      #46
   tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                      #46
   t128(EAX), EFLAGS = imul tv127-(EAX), 4                            #46
   tv129-(EAX) = mov t128(EAX)                                        #46
```

```
  tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                           #46
  t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                                   #46
                 jcc(NE) t131(EFLAGS), $L2                                  #46
  t133(EAX), EFLAGS = imul _i[EBP], 4                                       #48
  tv134-(EAX) = mov t133(EAX)                                               #48
  tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                           #48
  t169(ECX)   = mov _j[EBP]                                                 #48
  [tv134-(EAX)] = mov t169(ECX)                                             #48
  t136(EAX), EFLAGS = imul _j[EBP], 4                                       #49
  tv137-(EAX) = mov t136(EAX)                                               #49
  tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[EBP]                       #49
  [tv137-(EAX)] = mov 0                                                     #49
  tv139-(EAX) = mov _i[EBP]                                                 #50
  tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[EBP]                       #50
  t140(EAX), EFLAGS = imul tv139-(EAX), 4                                   #50
  tv141-(EAX) = mov t140(EAX)                                               #50
  tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[EBP]                       #50
  [tv141-(EAX)] = mov 0                                                     #50
  tv143-(EAX) = mov _i[EBP]                                                 #51
  tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[EBP]                       #51
  tv144-(EAX) = mov tv143-(EAX)                                             #51
  tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                             #51
  t145(EAX), EFLAGS = imul tv144-(EAX), 4                                   #51
  tv146-(EAX) = mov t145(EAX)                                               #51
  tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                           #51
  [tv146-(EAX)] = mov 0                                                     #51
  t148(EFLAGS) = cmp(LT) _i[EBP], 8                                         #52
                 jcc(GE) t148(EFLAGS), $L10                                 #52
  tv149-(EAX) = mov 1                                                       #54
  tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[EBP]                       #54
  [ESP], {ESP} = push _b[EBP], {ESP}                                        #54
  [ESP], {ESP} = push _a[EBP], {ESP}                                        #54
  [ESP], {ESP} = push _q[EBP], {ESP}                                        #54
  [ESP], {ESP} = push tv149-(EAX), {ESP}                                    #54
  {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
   #54
  ESP, EFLAGS = add ESP, 16(0x00000010)                                     #54
  t151(EAX)   = mov _q[EBP]                                                 #55
  t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                     #55
                 jcc(NE) t152(EFLAGS), $L2                                  #55
  t153(EAX), EFLAGS = imul _j[EBP], 4                                       #57
  tv154-(EAX) = mov t153(EAX)                                               #57
  tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[EBP]                       #57
  [tv154-(EAX)] = mov 1                                                     #57
  tv156-(EAX) = mov _i[EBP]                                                 #58
  tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[EBP]                       #58
  t157(EAX), EFLAGS = imul tv156-(EAX), 4                                   #58
  tv158-(EAX) = mov t157(EAX)                                               #58
  tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[EBP]                       #58
  [tv158-(EAX)] = mov 1                                                     #58
  tv160-(EAX) = mov _i[EBP]                                                 #59
```

```
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[EBP]                  #59
   tv161-(EAX) = mov tv160-(EAX)                                        #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                        #59
   t162(EAX), EFLAGS = imul tv161-(EAX), 4                              #59
   tv163-(EAX) = mov t162(EAX)                                          #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                      #59
   [tv163-(EAX)] = mov 1                                                #59
                 jmp $L2                                                #62
$L10:  (1 ref)                                                          #52
   t165(EAX)   = mov _q[EBP]                                            #62
   [t165(EAX)] = mov 1                                                  #62
                 jmp $L2                                                #64
$L15:  (2 refs)                                                         #65
                 EPILOGSTART                                            #65
   ESP         = mov EBP                                                #65
   EBP, {ESP}  = pop [ESP], {ESP}                                       #65
   {ESP}       = ret {ESP}                                              #65
                 EXITFUNC _try                                          #65
$L1:  (1 ref)                                                           #37
                 UNWIND _try                                            #37
                 END _try, {-7}                                         #65
```

IR after Encoding, Listing, COFF Emission (flag Encode)

```
   {-7}        = START _try                                             #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                      #37
   [ESP], {ESP} = push EBP, {ESP}                                       #37
   EBP         = mov ESP                                                #37
   [ESP], {ESP} = push ESP, {ESP}                                       #37
                 PROLOGEND                                              #37
   _j[EBP]     = mov 0                                                  #40
   t110(EAX)   = mov _q[EBP]                                            #41
   [t110(EAX)] = mov 0                                                  #41
$L2:  (6 refs)                                                          #42
   t111(EAX)   = mov _q[EBP]                                            #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                                #42
                 jne(NE) t112(EFLAGS), $L15                             #42
   t113(EFLAGS) = cmp(NE) _j[EBP], 8                                    #42
                 je(EQ) t113(EFLAGS), $L15                              #42
   tv114-(EAX) = mov 1                                                  #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[EBP]                  #44
   _j[EBP]     = mov tv114-(EAX)                                        #44
   t115(EAX)   = mov _q[EBP]                                            #45
   [t115(EAX)] = mov 0                                                  #45
   tv116-(EAX)<*14>, EFLAGS = imul _j[EBP], 4                           #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[EBP]                  #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                              #46
                 jne(NE) t119(EFLAGS), $L2                              #46
   tv120-(EAX) = mov _i[EBP]                                            #46
   tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[EBP]                  #46
   tv121-(EAX)<*18>, EFLAGS = imul tv120-(EAX), 4                       #46
   tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[EBP]                  #46
   t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                              #46
```

```
              jne(NE) t124(EFLAGS), $L2                                  #46
  tv126-(EAX) = mov _i[EBP]                                              #46
  tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[EBP]                    #46
  tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                          #46
  tv128-(EAX)<*23>, EFLAGS = imul tv127-(EAX), 4                         #46
  tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                        #46
  t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                                #46
              jne(NE) t131(EFLAGS), $L2                                  #46
  tv133-(EAX)<*26>, EFLAGS = imul _i[EBP], 4                             #48
  tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                        #48
  t169(ECX)    = mov _j[EBP]                                             #48
  [tv134-(EAX)] = mov t169(ECX)                                          #48
  tv136-(EAX)<*28>, EFLAGS = imul _j[EBP], 4                             #49
  tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[EBP]                    #49
  [tv137-(EAX)] = mov 0                                                  #49
  tv139-(EAX) = mov _i[EBP]                                              #50
  tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[EBP]                    #50
  tv140-(EAX)<*31>, EFLAGS = imul tv139-(EAX), 4                         #50
  tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[EBP]                    #50
  [tv141-(EAX)] = mov 0                                                  #50
  tv143-(EAX) = mov _i[EBP]                                              #51
  tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[EBP]                    #51
  tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                          #51
  tv145-(EAX)<*35>, EFLAGS = imul tv144-(EAX), 4                         #51
  tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                        #51
  [tv146-(EAX)] = mov 0                                                  #51
  t148(EFLAGS) = cmp(LT) _i[EBP], 8                                      #52
              jge(GE) t148(EFLAGS), $L10                                 #52
  tv149-(EAX) = mov 1                                                    #54
  tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[EBP]                    #54
  [ESP], {ESP} = push _b[EBP], {ESP}                                     #54
  [ESP], {ESP} = push _a[EBP], {ESP}                                     #54
  [ESP], {ESP} = push _q[EBP], {ESP}                                     #54
  [ESP], {ESP} = push tv149-(EAX), {ESP}                                 #54
  {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
   #54
  ESP, EFLAGS = add ESP, 16(0x00000010)                                  #54
  t151(EAX)    = mov _q[EBP]                                             #55
  t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                  #55
              jne(NE) t152(EFLAGS), $L2                                  #55
  tv153-(EAX)<*41>, EFLAGS = imul _j[EBP], 4                             #57
  tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[EBP]                    #57
  [tv154-(EAX)] = mov 1                                                  #57
  tv156-(EAX) = mov _i[EBP]                                              #58
  tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[EBP]                    #58
  tv157-(EAX)<*44>, EFLAGS = imul tv156-(EAX), 4                         #58
  tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[EBP]                    #58
  [tv158-(EAX)] = mov 1                                                  #58
  tv160-(EAX) = mov _i[EBP]                                              #59
  tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[EBP]                    #59
  tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                          #59
```

```
   tv162-(EAX)<*48>, EFLAGS = imul tv161-(EAX), 4                      #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                     #59
   [tv163-(EAX)] = mov 1                                               #59
                   jmp $L2                                             #62
$L10:  (1 ref)                                                         #52
   t165(EAX)     = mov _q[EBP]                                         #62
   [t165(EAX)] = mov 1                                                 #62
                   jmp $L2                                             #64
$L15:  (2 refs)                                                        #65
                   EPILOGSTART                                         #65
   ESP           = mov EBP                                             #65
   EBP, {ESP}    = pop [ESP], {ESP}                                    #65
   {ESP}         = ret {ESP}                                           #65
                   EXITFUNC _try                                       #65
$L1:  (1 ref)                                                          #37
                   UNWIND _try                                         #37
                   END _try, {-7}                                      #65


IR after LIR Phases (flag LIR Phases) [SubPhaseList]

   {-7}          = START _try                                          #37
   _i<*4>, _q<*3>, _a<*2>, _b<*1> = ENTERFUNC _try                     #37
   [ESP], {ESP} = push EBP, {ESP}                                      #37
   EBP           = mov ESP                                             #37
   [ESP], {ESP} = push ESP, {ESP}                                      #37
                   PROLOGEND                                           #37
   _j[EBP]       = mov 0                                               #40
   t110(EAX)     = mov _q[EBP]                                         #41
   [t110(EAX)] = mov 0                                                 #41
$L2:  (6 refs)                                                         #42
   t111(EAX)     = mov _q[EBP]                                         #42
   t112(EFLAGS) = cmp(EQ) [t111(EAX)], 0                               #42
                   jne(NE) t112(EFLAGS), $L15                          #42
   t113(EFLAGS) = cmp(NE) _j[EBP], 8                                   #42
                   je(EQ) t113(EFLAGS), $L15                           #42
   tv114-(EAX) = mov 1                                                 #44
   tv114-(EAX)<*12>, EFLAGS = add tv114-(EAX), _j[EBP]                 #44
   _j[EBP]       = mov tv114-(EAX)                                     #44
   t115(EAX)     = mov _q[EBP]                                         #45
   [t115(EAX)] = mov 0                                                 #45
   tv116-(EAX)<*14>, EFLAGS = imul _j[EBP], 4                          #46
   tv117-(EAX)<*15>, EFLAGS = add tv117-(EAX), _b[EBP]                 #46
   t119(EFLAGS) = cmp(EQ) [tv117-(EAX)], 1                             #46
                   jne(NE) t119(EFLAGS), $L2                           #46
   tv120-(EAX) = mov _i[EBP]                                           #46
   tv120-(EAX)<*17>, EFLAGS = add tv120-(EAX), _j[EBP]                 #46
   tv121-(EAX)<*18>, EFLAGS = imul tv120-(EAX), 4                      #46
   tv122-(EAX)<*19>, EFLAGS = add tv122-(EAX), _a[EBP]                 #46
   t124(EFLAGS) = cmp(EQ) [tv122-(EAX)], 1                             #46
                   jne(NE) t124(EFLAGS), $L2                           #46
   tv126-(EAX) = mov _i[EBP]                                           #46
   tv126-(EAX)<*21>, EFLAGS = sub tv126-(EAX), _j[EBP]                 #46
   tv127-(EAX)<*22>, EFLAGS = add tv127-(EAX), 7                            #46
   tv128-(EAX)<*23>, EFLAGS = imul tv127-(EAX), 4                           #46
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), &_c                          #46
   t131(EFLAGS) = cmp(EQ) [tv129-(EAX)], 1                                  #46
                 jne(NE) t131(EFLAGS), $L2                                  #46
   tv133-(EAX)<*26>, EFLAGS = imul _i[EBP], 4                               #48
   tv134-(EAX)<*27>, EFLAGS = add tv134-(EAX), &_x                          #48
   t169(ECX)    = mov _j[EBP]                                               #48
   [tv134-(EAX)] = mov t169(ECX)                                            #48
   tv136-(EAX)<*28>, EFLAGS = imul _j[EBP], 4                               #49
   tv137-(EAX)<*29>, EFLAGS = add tv137-(EAX), _b[EBP]                      #49
   [tv137-(EAX)] = mov 0                                                    #49
   tv139-(EAX) = mov _i[EBP]                                                #50
   tv139-(EAX)<*30>, EFLAGS = add tv139-(EAX), _j[EBP]                      #50
   tv140-(EAX)<*31>, EFLAGS = imul tv139-(EAX), 4                           #50
   tv141-(EAX)<*32>, EFLAGS = add tv141-(EAX), _a[EBP]                      #50
   [tv141-(EAX)] = mov 0                                                    #50
   tv143-(EAX) = mov _i[EBP]                                                #51
   tv143-(EAX)<*33>, EFLAGS = sub tv143-(EAX), _j[EBP]                      #51
   tv144-(EAX)<*34>, EFLAGS = add tv144-(EAX), 7                            #51
   tv145-(EAX)<*35>, EFLAGS = imul tv144-(EAX), 4                           #51
   tv146-(EAX)<*36>, EFLAGS = add tv146-(EAX), &_c                          #51
   [tv146-(EAX)] = mov 0                                                    #51
   t148(EFLAGS) = cmp(LT) _i[EBP], 8                                        #52
                 jge(GE) t148(EFLAGS), $L10                                 #52
   tv149-(EAX) = mov 1                                                      #54
   tv149-(EAX)<*38>, EFLAGS = add tv149-(EAX), _i[EBP]                      #54
   [ESP], {ESP} = push _b[EBP], {ESP}                                       #54
   [ESP], {ESP} = push _a[EBP], {ESP}                                       #54
   [ESP], {ESP} = push _q[EBP], {ESP}                                       #54
   [ESP], {ESP} = push tv149-(EAX), {ESP}                                   #54
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _try, $out[ESP], $out[ESP]+32, $out[ESP]+64, $out[ESP]+96, {-5}, {EAX ECX E
DX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} [Handler: $L1]
    #54
   ESP, EFLAGS = add ESP, 16(0x00000010)                                    #54
   t151(EAX)    = mov _q[EBP]                                               #55
   t152(EFLAGS) = cmp(EQ) [t151(EAX)], 0                                    #55
                 jne(NE) t152(EFLAGS), $L2                                  #55
   tv153-(EAX)<*41>, EFLAGS = imul _j[EBP], 4                               #57
   tv154-(EAX)<*42>, EFLAGS = add tv154-(EAX), _b[EBP]                      #57
   [tv154-(EAX)] = mov 1                                                    #57
   tv156-(EAX) = mov _i[EBP]                                                #58
   tv156-(EAX)<*43>, EFLAGS = add tv156-(EAX), _j[EBP]                      #58
   tv157-(EAX)<*44>, EFLAGS = imul tv156-(EAX), 4                           #58
   tv158-(EAX)<*45>, EFLAGS = add tv158-(EAX), _a[EBP]                      #58
   [tv158-(EAX)] = mov 1                                                    #58
   tv160-(EAX) = mov _i[EBP]                                                #59
   tv160-(EAX)<*46>, EFLAGS = sub tv160-(EAX), _j[EBP]                      #59
   tv161-(EAX)<*47>, EFLAGS = add tv161-(EAX), 7                            #59
   tv162-(EAX)<*48>, EFLAGS = imul tv161-(EAX), 4                           #59
   tv163-(EAX)<*49>, EFLAGS = add tv163-(EAX), &_c                          #59
   [tv163-(EAX)] = mov 1                                                    #59
```

```
                  jmp $L2                                         #62
$L10:  (1 ref)                                                    #52
   t165(EAX)    = mov _q[EBP]                                     #62
   [t165(EAX)]  = mov 1                                           #62
                  jmp $L2                                         #64
$L15:  (2 refs)                                                   #65
                  EPILOGSTART                                     #65
   ESP          = mov EBP                                         #65
   EBP, {ESP}   = pop [ESP], {ESP}                                #65
   {ESP}        = ret {ESP}                                       #65
                  EXITFUNC _try                                   #65
$L1:  (1 ref)                                                     #37
                  UNWIND _try                                     #37
                  END _try, {-7}                                  #65


/* IR after various phases for second part of program*/
IR after CIL Reader (flag cil)

   {-7}         = START _main                                     #68
                  ENTERFUNC _main                                 #68
   _doitagain   = ASSIGN 1                                        #78
                  GOTO $L2                                        #78
$L3:  (1 ref)                                                     #78
   t109         = ASSIGN _doitagain                               #78
   t110         = ADD t109, 1                                     #78
   _doitagain   = ASSIGN t110                                     #78
                  GOTO $L2                                        #78
$L2:  (2 refs)                                                    #78
   t111         = CMP(LE) _doitagain, 6000(0x00001770)            #78
                  CBRANCH(LE) t111, $L5, $L4                      #78
$L5:  (1 ref)                                                     #78
   _i           = ASSIGN 0                                        #80
                  GOTO $L6                                        #81
$L6:  (2 refs)                                                    #81
   t112         = CMP(LE) _i, 16(0x00000010)                      #81
                  CBRANCH(LE) t112, $L8, $L7                      #81
$L8:  (1 ref)                                                     #81
   t113         = CMP(GE) _i, 1                                   #83
                  CBRANCH(GE) t113, $L10, $L9                     #83
$L10:  (1 ref)                                                    #83
   t114         = CMP(LE) _i, 8                                   #83
                  CBRANCH(LE) t114, $L11, $L9                     #83
$L11:  (1 ref)                                                    #83
   t116         = MUL _i, 4                                       #83
   t117         = SUBSCRIPT &_a, t116                             #83
   t118         = ASSIGN t117                                     #83
   [t118]       = ASSIGN 1                                        #83
                  GOTO $L9                                        #83
$L9:  (3 refs)                                                    #83
   t119         = CMP(GE) _i, 2                                   #84
                  CBRANCH(GE) t119, $L13, $L12                    #84
$L13:  (1 ref)                                                    #84
```

```
   t121         = MUL _i, 4                                                  #84
   t122         = SUBSCRIPT &_b, t121                                        #84
   t123         = ASSIGN t122                                                #84
   [t123]       = ASSIGN 1                                                   #84
                  GOTO $L12                                                  #84
$L12:  (2 refs)                                                              #84
   t124         = CMP(LE) _i, 14(0x0000000e)                                 #85
                  CBRANCH(LE) t124, $L15, $L14                               #85
$L15:  (1 ref)                                                               #85
   t126         = MUL _i, 4                                                  #85
   t127         = SUBSCRIPT &_c, t126                                        #85
   t128         = ASSIGN t127                                                #85
   [t128]       = ASSIGN 1                                                   #85
                  GOTO $L14                                                  #85
$L14:  (2 refs)                                                              #85
   t129         = ADD _i, 1                                                  #86
   _i           = ASSIGN t129                                                #86
                  GOTO $L6                                                   #87
$L7:  (1 ref)                                                                #81
   {-5}         = CALL _try, 1, &_q, &_b, &_a, {-5} [Handler: $L1]           #89
   t131         = CMP(EQ) _q, 1                                              #90
                  CBRANCH(EQ) t131, $L17, $L16                               #90
$L17:  (1 ref)                                                               #90
   _i           = ASSIGN 1                                                   #91
                  GOTO $L18                                                  #92
$L18:  (2 refs)                                                              #92
   t132         = CMP(LE) _i, 8                                              #92
                  CBRANCH(LE) t132, $L20, $L19                               #92
$L20:  (1 ref)                                                               #92
   t133         = ADD _i, 1                                                  #93
   _i           = ASSIGN t133                                                #93
                  GOTO $L18                                                  #93
$L19:  (1 ref)                                                               #92
                  GOTO $L21                                                  #95
$L16:  (1 ref)                                                               #90
   {-5}         = CALL _printf, &$SG1197, {-5} [Handler: $L1]                #97
   {-5}         = CALL _exit, 0, {-5} [Handler: $L1]                         #98
                  GOTO $L21                                                  #95
$L21:  (2 refs)                                                              #95
                  GOTO $L3                                                   #100
$L4:  (1 ref)                                                                #78
   {-5}         = CALL _printf, &$SG1198, {-5} [Handler: $L1]                #101
                  RETURN 0                                                   #108
                  GOTO $L22                                                  #108
$L1:  (4 refs)                                                               #68
                  UNWIND _main                                               #68
$L22:  (1 ref)                                                               #108
                  EXITFUNC _main                                             #109
                  END _main, {-7}                                            #109
```

IR after Type Checker (flag Type Checker)

```
   {-7}       = START _main                                         #68
                ENTERFUNC _main                                     #68
   _doitagain = ASSIGN 1                                            #78
                GOTO $L2                                            #78
$L3:  (1 ref)                                                       #78
   t109       = ASSIGN _doitagain                                   #78
   t110       = ADD t109, 1                                         #78
   _doitagain = ASSIGN t110                                         #78
                GOTO $L2                                            #78
$L2:  (2 refs)                                                      #78
   t111       = CMP(LE) _doitagain, 6000(0x00001770)                #78
                CBRANCH(LE) t111, $L5, $L4                          #78
$L5:  (1 ref)                                                       #78
   _i         = ASSIGN 0                                            #80
                GOTO $L6                                            #81
$L6:  (2 refs)                                                      #81
   t112       = CMP(LE) _i, 16(0x00000010)                          #81
                CBRANCH(LE) t112, $L8, $L7                          #81
$L8:  (1 ref)                                                       #81
   t113       = CMP(GE) _i, 1                                       #83
                CBRANCH(GE) t113, $L10, $L9                         #83
$L10:  (1 ref)                                                      #83
   t114       = CMP(LE) _i, 8                                       #83
                CBRANCH(LE) t114, $L11, $L9                         #83
$L11:  (1 ref)                                                      #83
   t116       = MUL _i, 4                                           #83
   t117       = SUBSCRIPT &_a, t116                                 #83
   t118       = ASSIGN t117                                         #83
   [t118]     = ASSIGN 1                                            #83
                GOTO $L9                                            #83
$L9:  (3 refs)                                                      #83
   t119       = CMP(GE) _i, 2                                       #84
                CBRANCH(GE) t119, $L13, $L12                        #84
$L13:  (1 ref)                                                      #84
   t121       = MUL _i, 4                                           #84
   t122       = SUBSCRIPT &_b, t121                                 #84
   t123       = ASSIGN t122                                         #84
   [t123]     = ASSIGN 1                                            #84
                GOTO $L12                                           #84
$L12:  (2 refs)                                                     #84
   t124       = CMP(LE) _i, 14(0x0000000e)                          #85
                CBRANCH(LE) t124, $L15, $L14                        #85
$L15:  (1 ref)                                                      #85
   t126       = MUL _i, 4                                           #85
   t127       = SUBSCRIPT &_c, t126                                 #85
   t128       = ASSIGN t127                                         #85
   [t128]     = ASSIGN 1                                            #85
                GOTO $L14                                           #85
$L14:  (2 refs)                                                     #85
   t129       = ADD _i, 1                                           #86
   _i         = ASSIGN t129                                         #86
                GOTO $L6                                            #87
$L7:  (1 ref)                                                       #81
```

```
   {-5}         = CALL _try, 1, &_q, &_b, &_a, {-5} [Handler: $L1]        #89
   t131         = CMP(EQ) _q, 1                                          #90
                  CBRANCH(EQ) t131, $L17, $L16                           #90
$L17:  (1 ref)                                                           #90
   _i           = ASSIGN 1                                               #91
                  GOTO $L18                                              #92
$L18:  (2 refs)                                                          #92
   t132         = CMP(LE) _i, 8                                          #92
                  CBRANCH(LE) t132, $L20, $L19                           #92
$L20:  (1 ref)                                                           #92
   t133         = ADD _i, 1                                              #93
   _i           = ASSIGN t133                                            #93
                  GOTO $L18                                              #93
$L19:  (1 ref)                                                           #92
                  GOTO $L21                                              #95
$L16:  (1 ref)                                                           #90
   {-5}         = CALL _printf, &$SG1197, {-5} [Handler: $L1]            #97
   {-5}         = CALL _exit, 0, {-5} [Handler: $L1]                     #98
                  GOTO $L21                                              #95
$L21:  (2 refs)                                                          #95
                  GOTO $L3                                               #100
$L4:  (1 ref)                                                            #78
   {-5}         = CALL _printf, &$SG1198, {-5} [Handler: $L1]            #101
                  RETURN 0                                               #108
                  GOTO $L22                                              #108
$L1:  (4 refs)                                                           #68
                  UNWIND _main                                           #68
$L22:  (1 ref)                                                           #108
                  EXITFUNC _main                                         #109
                  END _main, {-7}                                        #109


IR after MIR Lower (flag MIRLower)

   {-7}         = START _main                                            #68
                  ENTERFUNC _main                                        #68
   _doitagain   = ASSIGN 1                                               #78
                  GOTO $L2                                               #78
$L3:  (1 ref)                                                            #78
   t109         = ASSIGN _doitagain                                      #78
   t110         = ADD t109, 1                                            #78
   _doitagain   = ASSIGN t110                                            #78
                  GOTO $L2                                               #78
$L2:  (2 refs)                                                           #78
   t111         = CMP(LE) _doitagain, 6000(0x00001770)                   #78
                  CBRANCH(LE) t111, $L5, $L4                             #78
$L5:  (1 ref)                                                            #78
   _i           = ASSIGN 0                                               #80
                  GOTO $L6                                               #81
$L6:  (2 refs)                                                           #81
   t112         = CMP(LE) _i, 16(0x00000010)                             #81
                  CBRANCH(LE) t112, $L8, $L7                             #81
$L8:  (1 ref)                                                            #81
```

```
   t113         = CMP(GE) _i, 1                                          #83
                  CBRANCH(GE) t113, $L10, $L9                            #83
$L10:  (1 ref)                                                           #83
   t114         = CMP(LE) _i, 8                                          #83
                  CBRANCH(LE) t114, $L11, $L9                            #83
$L11:  (1 ref)                                                           #83
   t116         = MUL _i, 4                                              #83
   t117         = ADD &_a, t116                                          #83
   t118         = ASSIGN t117                                            #83
   [t118]       = ASSIGN 1                                               #83
                  GOTO $L9                                               #83
$L9:  (3 refs)                                                           #83
   t119         = CMP(GE) _i, 2                                          #84
                  CBRANCH(GE) t119, $L13, $L12                           #84
$L13:  (1 ref)                                                           #84
   t121         = MUL _i, 4                                              #84
   t122         = ADD &_b, t121                                          #84
   t123         = ASSIGN t122                                            #84
   [t123]       = ASSIGN 1                                               #84
                  GOTO $L12                                              #84
$L12:  (2 refs)                                                          #84
   t124         = CMP(LE) _i, 14(0x0000000e)                             #85
                  CBRANCH(LE) t124, $L15, $L14                           #85
$L15:  (1 ref)                                                           #85
   t126         = MUL _i, 4                                              #85
   t127         = ADD &_c, t126                                          #85
   t128         = ASSIGN t127                                            #85
   [t128]       = ASSIGN 1                                               #85
                  GOTO $L14                                              #85
$L14:  (2 refs)                                                          #85
   t129         = ADD _i, 1                                              #86
   _i           = ASSIGN t129                                            #86
                  GOTO $L6                                               #87
$L7:  (1 ref)                                                            #81
   {-5}         = CALL _try, 1, &_q, &_b, &_a, {-5} [Handler: $L1]       #89
   t131         = CMP(EQ) _q, 1                                          #90
                  CBRANCH(EQ) t131, $L17, $L16                           #90
$L17:  (1 ref)                                                           #90
   _i           = ASSIGN 1                                               #91
                  GOTO $L18                                              #92
$L18:  (2 refs)                                                          #92
   t132         = CMP(LE) _i, 8                                          #92
                  CBRANCH(LE) t132, $L20, $L19                           #92
$L20:  (1 ref)                                                           #92
   t133         = ADD _i, 1                                              #93
   _i           = ASSIGN t133                                            #93
                  GOTO $L18                                              #93
$L19:  (1 ref)                                                           #92
                  GOTO $L21                                              #95
$L16:  (1 ref)                                                           #90
   {-5}         = CALL _printf, &$SG1197, {-5} [Handler: $L1]            #97
   {-5}         = CALL _exit, 0, {-5} [Handler: $L1]                     #98
                  GOTO $L21                                              #95
```

```
$L21:  (2 refs)                                                          #95
                GOTO $L3                                                 #100
$L4:  (1 ref)                                                            #78
   {-5}        = CALL _printf, &$SG1198, {-5} [Handler: $L1]             #101
                RETURN 0                                                 #108
                GOTO $L22                                                #108
$L1:  (4 refs)                                                           #68
                UNWIND _main                                             #68
$L22:  (1 ref)                                                           #108
                EXITFUNC _main                                           #109
                END _main, {-7}                                          #109
```

```
IR after Ssa Construction and Optimization (flag Ssa)

==== Block 1 Pred() Succ(2) next 2 pre 1 post 58 iDom 1 df
   {-7}, {-1}  = START _main                                             #68
==== Block 2 Pred(1) Succ(4) prev 1 next 4 pre 2 post 57 iDom 1 df
                ENTERFUNC _main                                          #68
   _doitagain<*1> = ASSIGN 1                                             #78
                GOTO $L2                                                 #78
==== Block 4 Pred(3,2) Succ(25,5) prev 2 next 5 pre 3 post 56 iDom 2 df 4
$L2:  (2 refs)                                                           #78
   _doitagain<*2> = PHI _doitagain<3>, _doitagain<1>                     #109
   tv111-<*6>  = CMP(LE) _doitagain<2>, 6000(0x00001770)                 #78
                CBRANCH(LE) tv111-<6>, $L5, $L4                          #78
==== Block 5 Pred(4) Succ(6) prev 4 next 6 pre 14 post 55 iDom 4 df 4,27
$L5:  (1 ref)                                                            #78
   _i<*7>      = ASSIGN 0                                                #80
                GOTO $L6                                                 #81
==== Block 6 Pred(14,5) Succ(15,7) prev 5 next 7 pre 15 post 54 iDom 5 df 4,
6,27
$L6:  (2 refs)                                                           #81
   _i<*8>      = PHI _i<12>, _i<7>                                       #109
   tv112-<*13> = CMP(LE) _i<8>, 16(0x00000010)                           #81
                CBRANCH(LE) tv112-<13>, $L8, $L7                         #81
==== Block 7 Pred(6) Succ(10,8) prev 6 next 8 pre 38 post 53 iDom 6 df 6
$L8:  (1 ref)                                                            #81
   tv113-<*14> = CMP(GE) _i<8>, 1                                        #83
                CBRANCH(GE) tv113-<14>, $L10, $L9                        #83
==== Block 8 Pred(7) Succ(10,9) prev 7 next 9 pre 49 post 52 iDom 7 df 10
$L10:  (1 ref)                                                           #83
   tv114-<*15> = CMP(LE) _i<8>, 8                                        #83
                CBRANCH(LE) tv114-<15>, $L11, $L9                        #83
==== Block 9 Pred(8) Succ(10) prev 8 next 10 pre 50 post 51 iDom 8 df 10
$L11:  (1 ref)                                                           #83
   tv116-<*16> = MUL _i<8>, 4                                            #83
   tv117-<*17> = ADD &_a, tv116-<16>                                     #83
   [tv117-<17>] = ASSIGN 1                                               #83
                GOTO $L9                                                 #83
==== Block 10 Pred(9,8,7) Succ(12,11) prev 9 next 11 pre 39 post 48 iDom 7 d
f 6
```

```
$L9:  (3 refs)                                                          #83
   tv119-<*18> = CMP(GE) _i<8>, 2                                       #84
                 CBRANCH(GE) tv119-<18>, $L13, $L12                     #84
==== Block 11 Pred(10) Succ(12) prev 10 next 12 pre 46 post 47 iDom 10 df 12
$L13:  (1 ref)                                                          #84
   tv121-<*19> = MUL _i<8>, 4                                           #84
   tv122-<*20> = ADD &_b, tv121-<19>                                    #84
   [tv122-<20>] = ASSIGN 1                                              #84
                 GOTO $L12                                              #84
==== Block 12 Pred(11,10) Succ(14,13) prev 11 next 13 pre 40 post 45 iDom 10
 df 6
$L12:  (2 refs)                                                         #84
   tv124-<*21> = CMP(LE) _i<8>, 14(0x0000000e)                          #85
                 CBRANCH(LE) tv124-<21>, $L15, $L14                     #85
==== Block 13 Pred(12) Succ(14) prev 12 next 14 pre 43 post 44 iDom 12 df 14
$L15:  (1 ref)                                                          #85
   tv126-<*22> = MUL _i<8>, 4                                           #85
   tv127-<*23> = ADD &_c, tv126-<22>                                    #85
   [tv127-<23>] = ASSIGN 1                                              #85
                 GOTO $L14                                              #85
==== Block 14 Pred(13,12) Succ(6) prev 13 next 15 pre 41 post 42 iDom 12 df
6
$L14:  (2 refs)                                                         #85
   tv129-<*24> = ADD _i<8>, 1                                           #86
   _i<*12>     = ASSIGN tv129-<24>                                      #86
                 GOTO $L6                                               #87
==== Block 15 Pred(6) Succ(16,27) prev 14 next 16 pre 16 post 37 iDom 6 df 4
,27
$L7:  (1 ref)                                                           #81
   {-5}        = CALL _try, 1, &_q, &_b, &_a, {-5} [Handler: $L1]       #89
                 GOTO $L23                                              #109
==== Block 16 Pred(15) Succ(21,17) prev 15 next 17 pre 17 post 36 iDom 15 df
 4,27
$L23:  (1 ref)                                                          #109
   tv131-<*25> = CMP(EQ) _q, 1                                          #90
                 CBRANCH(EQ) tv131-<25>, $L17, $L16                     #90
==== Block 17 Pred(16) Succ(18) prev 16 next 18 pre 28 post 35 iDom 16 df 24
$L17:  (1 ref)                                                          #90
   _i<*9>      = ASSIGN 1                                               #91
                 GOTO $L18                                              #92
==== Block 18 Pred(19,17) Succ(20,19) prev 17 next 19 pre 29 post 34 iDom 17
 df 18,24
$L18:  (2 refs)                                                         #92
   _i<*10>     = PHI _i<11>, _i<9>                                      #109
   tv132-<*26> = CMP(LE) _i<10>, 8                                      #92
                 CBRANCH(LE) tv132-<26>, $L20, $L19                     #92
==== Block 19 Pred(18) Succ(18) prev 18 next 20 pre 32 post 33 iDom 18 df 18
$L20:  (1 ref)                                                          #92
   tv133-<*27> = ADD _i<10>, 1                                          #93
   _i<*11>     = ASSIGN tv133-<27>                                      #93
                 GOTO $L18                                              #93
==== Block 20 Pred(18) Succ(24) prev 19 next 21 pre 30 post 31 iDom 18 df 24
$L19:  (1 ref)                                                          #92
```

```
                 GOTO $L21                                          #95
==== Block 21 Pred(16) Succ(22,27) prev 20 next 22 pre 18 post 27 iDom 16 df
 24,27
$L16:  (1 ref)                                                      #90
   {-5}        = CALL _printf, &$SG1197, {-5} [Handler: $L1]        #97
                 GOTO $L24                                          #109
==== Block 22 Pred(21) Succ(23,27) prev 21 next 23 pre 19 post 26 iDom 21 df
 24,27
$L24:  (1 ref)                                                      #109
   {-5}        = CALL _exit, 0, {-5} [Handler: $L1]                 #98
                 GOTO $L25                                          #109
==== Block 23 Pred(22) Succ(24) prev 22 next 24 pre 20 post 25 iDom 22 df 24
$L25:  (1 ref)                                                      #109
                 GOTO $L21                                          #95
==== Block 24 Pred(23,20) Succ(3) prev 23 next 3 pre 21 post 24 iDom 16 df 4
$L21:  (2 refs)                                                     #95
                 GOTO $L3                                           #100
==== Block 3 Pred(24) Succ(4) prev 24 next 25 pre 22 post 23 iDom 24 df 4
$L3:  (1 ref)                                                       #78
   tv109-<*4>  = ASSIGN _doitagain<2>                               #78
   tv110-<*5>  = ADD tv109-<4>, 1                                   #78
   _doitagain<*3> = ASSIGN tv110-<5>                                #78
                 GOTO $L2                                           #78
==== Block 25 Pred(4) Succ(26,27) prev 3 next 27 pre 4 post 13 iDom 4 df 27,
29
$L4:  (1 ref)                                                       #78
   {-5}        = CALL _printf, &$SG1198, {-5} [Handler: $L1]        #101
                 GOTO $L26                                          #109
==== Block 27 Pred(25,22,21,15) Succ(29) prev 25 next 26 pre 11 post 12 iDom
 4 df 29
$L1:  (4 refs)                                                      #68
                 UNWIND _main                                       #68
==== Block 26 Pred(25) Succ(28) prev 27 next 28 pre 5 post 10 iDom 25 df 29
$L26:  (1 ref)                                                      #109
                 RETURN 0                                           #108
                 GOTO $L22                                          #108
==== Block 28 Pred(26) Succ(29) prev 26 next 29 pre 6 post 9 iDom 26 df 29
$L22:  (1 ref)                                                      #108
                 EXITFUNC _main                                     #109
==== Block 29 Pred(28,27) Succ() prev 28 pre 7 post 8 iDom 4 df
                 END _main, {-7}                                    #109


IR after Ssa Info Destruction (flag Ssa)

   {-7}        = START _main                                        #68
                 ENTERFUNC _main                                    #68
   _doitagain<*1> = ASSIGN 1                                        #78
                 GOTO $L2                                           #78
$L3:  (1 ref)                                                       #78
   t109        = ASSIGN _doitagain                                  #78
   t110        = ADD t109, 1                                        #78
   _doitagain<*3> = ASSIGN t110                                     #78
```

```
            GOTO $L2                                        #78
$L2:  (2 refs)                                              #78
  t111      = CMP(LE) _doitagain, 6000(0x00001770)          #78
            CBRANCH(LE) t111, $L5, $L4                      #78
$L5:  (1 ref)                                               #78
  _i<*7>    = ASSIGN 0                                      #80
            GOTO $L6                                        #81
$L6:  (2 refs)                                              #81
  t112      = CMP(LE) _i, 16(0x00000010)                    #81
            CBRANCH(LE) t112, $L8, $L7                      #81
$L8:  (1 ref)                                               #81
  t113      = CMP(GE) _i, 1                                 #83
            CBRANCH(GE) t113, $L10, $L9                     #83
$L10:  (1 ref)                                              #83
  t114      = CMP(LE) _i, 8                                 #83
            CBRANCH(LE) t114, $L11, $L9                     #83
$L11:  (1 ref)                                              #83
  t116      = MUL _i, 4                                     #83
  t117      = ADD &_a, t116                                 #83
  [t117]    = ASSIGN 1                                      #83
            GOTO $L9                                        #83
$L9:  (3 refs)                                              #83
  t119      = CMP(GE) _i, 2                                 #84
            CBRANCH(GE) t119, $L13, $L12                    #84
$L13:  (1 ref)                                              #84
  t121      = MUL _i, 4                                     #84
  t122      = ADD &_b, t121                                 #84
  [t122]    = ASSIGN 1                                      #84
            GOTO $L12                                       #84
$L12:  (2 refs)                                             #84
  t124      = CMP(LE) _i, 14(0x0000000e)                    #85
            CBRANCH(LE) t124, $L15, $L14                    #85
$L15:  (1 ref)                                              #85
  t126      = MUL _i, 4                                     #85
  t127      = ADD &_c, t126                                 #85
  [t127]    = ASSIGN 1                                      #85
            GOTO $L14                                       #85
$L14:  (2 refs)                                             #85
  t129      = ADD _i, 1                                     #86
  _i<*12>   = ASSIGN t129                                   #86
            GOTO $L6                                        #87
$L7:  (1 ref)                                               #81
  {-5}      = CALL _try, 1, &_q, &_b, &_a, {-5} [Handler: $L1]    #89
            GOTO $L23                                       #109
$L23:  (1 ref)                                              #109
  t131      = CMP(EQ) _q, 1                                 #90
            CBRANCH(EQ) t131, $L17, $L16                    #90
$L17:  (1 ref)                                              #90
  _i<*9>    = ASSIGN 1                                      #91
            GOTO $L18                                       #92
$L18:  (2 refs)                                             #92
  t132      = CMP(LE) _i, 8                                 #92
            CBRANCH(LE) t132, $L20, $L19                    #92
```

```
$L20:  (1 ref)                                                          #92
   t133        = ADD _i, 1                                              #93
   _i<*11>     = ASSIGN t133                                            #93
                 GOTO $L18                                              #93
$L19:  (1 ref)                                                          #92
                 GOTO $L21                                              #95
$L16:  (1 ref)                                                          #90
   {-5}        = CALL _printf, &$SG1197, {-5} [Handler: $L1]            #97
                 GOTO $L24                                              #109
$L24:  (1 ref)                                                          #109
   {-5}        = CALL _exit, 0, {-5} [Handler: $L1]                     #98
                 GOTO $L25                                              #109
$L25:  (1 ref)                                                          #109
                 GOTO $L21                                              #95
$L21:  (2 refs)                                                         #95
                 GOTO $L3                                               #100
$L4:  (1 ref)                                                           #78
   {-5}        = CALL _printf, &$SG1198, {-5} [Handler: $L1]            #101
                 GOTO $L26                                              #109
$L26:  (1 ref)                                                          #109
                 RETURN 0                                               #108
                 GOTO $L22                                              #108
$L1:  (4 refs)                                                          #68
                 UNWIND _main                                           #68
$L22:  (1 ref)                                                          #108
                 EXITFUNC _main                                         #109
                 END _main, {-7}                                        #109


IR after Lower (flag Lower)

   {-7}        = START _main                                            #68
                 ENTERFUNC _main                                        #68
                 PROLOGEND                                              #68
   _doitagain[_FP] = mov 1                                              #78
                 jmp $L2                                                #78
$L3:  (1 ref)                                                           #78
   t109(_rd)   = mov _doitagain[_FP]                                    #78
   tv110-(_rd) = mov t109(_rd)                                          #78
   tv110-(_rd)<*5>, EFLAGS = add tv110-(_rd), 1                         #78
   _doitagain[_FP] = mov tv110-(_rd)                                    #78
                 jmp $L2                                                #78
$L2:  (2 refs)                                                          #78
   t111(EFLAGS) = cmp(LE) _doitagain[_FP], 6000(0x00001770)             #78
                 jcc(LE) t111(EFLAGS), $L5, $L4                         #78
$L5:  (1 ref)                                                           #78
   _i[_FP]     = mov 0                                                  #80
                 jmp $L6                                                #81
$L6:  (2 refs)                                                          #81
   t112(EFLAGS) = cmp(LE) _i[_FP], 16(0x00000010)                       #81
                 jcc(LE) t112(EFLAGS), $L8, $L7                         #81
$L8:  (1 ref)                                                           #81
   t113(EFLAGS) = cmp(GE) _i[_FP], 1                                    #83
```

```
                jcc(GE) t113(EFLAGS), $L10, $L9                       #83
$L10:  (1 ref)                                                         #83
   t114(EFLAGS) = cmp(LE) _i[_FP], 8                                   #83
                jcc(LE) t114(EFLAGS), $L11, $L9                        #83
$L11:  (1 ref)                                                         #83
   t116(_rd), EFLAGS = imul _i[_FP], 4                                 #83
   tv117-(_rd) = mov t116(_rd)                                         #83
   tv117-(_rd)<*17>, EFLAGS = add tv117-(_rd), &_a                     #83
   [tv117-(_rd)] = mov 1                                               #83
                jmp $L9                                                #83
$L9:  (3 refs)                                                         #83
   t119(EFLAGS) = cmp(GE) _i[_FP], 2                                   #84
                jcc(GE) t119(EFLAGS), $L13, $L12                       #84
$L13:  (1 ref)                                                         #84
   t121(_rd), EFLAGS = imul _i[_FP], 4                                 #84
   tv122-(_rd) = mov t121(_rd)                                         #84
   tv122-(_rd)<*20>, EFLAGS = add tv122-(_rd), &_b                     #84
   [tv122-(_rd)] = mov 1                                               #84
                jmp $L12                                               #84
$L12:  (2 refs)                                                        #84
   t124(EFLAGS) = cmp(LE) _i[_FP], 14(0x0000000e)                      #85
                jcc(LE) t124(EFLAGS), $L15, $L14                       #85
$L15:  (1 ref)                                                         #85
   t126(_rd), EFLAGS = imul _i[_FP], 4                                 #85
   tv127-(_rd) = mov t126(_rd)                                         #85
   tv127-(_rd)<*23>, EFLAGS = add tv127-(_rd), &_c                     #85
   [tv127-(_rd)] = mov 1                                               #85
                jmp $L14                                               #85
$L14:  (2 refs)                                                        #85
   tv129-(_rd) = mov 1                                                 #86
   tv129-(_rd)<*24>, EFLAGS = add tv129-(_rd), _i[_FP]                 #86
   _i[_FP]     = mov tv129-(_rd)                                       #86
                jmp $L6                                                #87
$L7:  (1 ref)                                                          #81
   [ESP], {ESP} = push &_a, {ESP}                                      #89
   [ESP], {ESP} = push &_b, {ESP}                                      #89
   t140(_rd)   = lea &_q[_FP]                                          #89
   [ESP], {ESP} = push t140(_rd), {ESP}                                #89
   [ESP], {ESP} = push 1, {ESP}                                        #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
   ESP, EFLAGS = add ESP, 16(0x00000010)                               #89
                jmp $L23                                               #109
$L23:  (1 ref)                                                         #109
   t131(EFLAGS) = cmp(EQ) _q[_FP], 1                                   #90
                jcc(EQ) t131(EFLAGS), $L17, $L16                       #90
$L17:  (1 ref)                                                         #90
   _i[_FP]     = mov 1                                                 #91
                jmp $L18                                               #92
$L18:  (2 refs)                                                        #92
   t132(EFLAGS) = cmp(LE) _i[_FP], 8                                   #92
                jcc(LE) t132(EFLAGS), $L20, $L19                       #92
```

```
$L20:  (1 ref)                                                          #92
   tv133-(_rd) = mov 1                                                  #93
   tv133-(_rd)<*27>, EFLAGS = add tv133-(_rd), _i[_FP]                  #93
   _i[_FP]     = mov tv133-(_rd)                                        #93
                 jmp $L18                                               #93
$L19:  (1 ref)                                                          #92
                 jmp $L21                                               #95
$L16:  (1 ref)                                                          #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                  #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
   ESP, EFLAGS = add ESP, 4                                             #97
                 jmp $L24                                               #109
$L24:  (1 ref)                                                          #109
   [ESP], {ESP} = push 0, {ESP}                                         #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
   ESP, EFLAGS = add ESP, 4                                             #98
                 jmp $L25                                               #109
$L25:  (1 ref)                                                          #109
                 jmp $L21                                               #95
$L21:  (2 refs)                                                         #95
                 jmp $L3                                                #100
$L4:  (1 ref)                                                           #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                  #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
   ESP, EFLAGS = add ESP, 4                                             #101
                 jmp $L26                                               #109
$L26:  (1 ref)                                                          #109
   t142(EAX)   = mov 0                                                  #108
                 jmp $L22                                               #108
$L1:  (4 refs)                                                          #68
                 UNWIND _main                                           #68
$L22:  (1 ref)                                                          #108
                 EPILOGSTART                                            #109
                 EXITFUNC _main, t142(EAX)                              #109
                 END _main, {-7}                                        #109


IR after Linear Scan Register Allocation (flag LinearScan)

   {-7}        = START _main                                            #68
                 ENTERFUNC _main                                        #68
                 PROLOGEND                                              #68
   _doitagain[_FP] = mov 1                                              #78
                 jmp $L2                                                #78
```

```
$L3:  (1 ref)                                                     #78
   t109(EAX)   = mov _doitagain[_FP]                              #78
   tv110-(EAX) = mov t109(EAX)                                    #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                   #78
   _doitagain[_FP] = mov tv110-(EAX)                              #78
                 jmp $L2                                          #78
$L2:  (2 refs)                                                    #78
   t111(EFLAGS) = cmp(LE) _doitagain[_FP], 6000(0x00001770)       #78
                 jcc(LE) t111(EFLAGS), $L5, $L4                   #78
$L5:  (1 ref)                                                     #78
   _i[_FP]     = mov 0                                            #80
                 jmp $L6                                          #81
$L6:  (2 refs)                                                    #81
   t112(EFLAGS) = cmp(LE) _i[_FP], 16(0x00000010)                 #81
                 jcc(LE) t112(EFLAGS), $L8, $L7                   #81
$L8:  (1 ref)                                                     #81
   t113(EFLAGS) = cmp(GE) _i[_FP], 1                              #83
                 jcc(GE) t113(EFLAGS), $L10, $L9                  #83
$L10:  (1 ref)                                                    #83
   t114(EFLAGS) = cmp(LE) _i[_FP], 8                              #83
                 jcc(LE) t114(EFLAGS), $L11, $L9                  #83
$L11:  (1 ref)                                                    #83
   t116(EAX), EFLAGS = imul _i[_FP], 4                            #83
   tv117-(EAX) = mov t116(EAX)                                    #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                #83
   [tv117-(EAX)] = mov 1                                          #83
                 jmp $L9                                          #83
$L9:  (3 refs)                                                    #83
   t119(EFLAGS) = cmp(GE) _i[_FP], 2                              #84
                 jcc(GE) t119(EFLAGS), $L13, $L12                 #84
$L13:  (1 ref)                                                    #84
   t121(EAX), EFLAGS = imul _i[_FP], 4                            #84
   tv122-(EAX) = mov t121(EAX)                                    #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                #84
   [tv122-(EAX)] = mov 1                                          #84
                 jmp $L12                                         #84
$L12:  (2 refs)                                                   #84
   t124(EFLAGS) = cmp(LE) _i[_FP], 14(0x0000000e)                 #85
                 jcc(LE) t124(EFLAGS), $L15, $L14                 #85
$L15:  (1 ref)                                                    #85
   t126(EAX), EFLAGS = imul _i[_FP], 4                            #85
   tv127-(EAX) = mov t126(EAX)                                    #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                #85
   [tv127-(EAX)] = mov 1                                          #85
                 jmp $L14                                         #85
$L14:  (2 refs)                                                   #85
   tv129-(EAX) = mov 1                                            #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[_FP]            #86
   _i[_FP]     = mov tv129-(EAX)                                  #86
                 jmp $L6                                          #87
$L7:  (1 ref)                                                     #81
   [ESP], {ESP} = push &_a, {ESP}                                 #89
   [ESP], {ESP} = push &_b, {ESP}                                 #89
   t140(EAX)    = lea &_q[_FP]                                        #89
   [ESP], {ESP} = push t140(EAX), {ESP}                               #89
   [ESP], {ESP} = push 1, {ESP}                                       #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
                jmp $L27                                              #109
$L27:  (1 ref)                                                        #109
   ESP, EFLAGS = add ESP, 16(0x00000010)                              #89
                jmp $L23                                              #109
$L23:  (1 ref)                                                        #109
   t131(EFLAGS) = cmp(EQ) _q[_FP], 1                                  #90
                jcc(EQ) t131(EFLAGS), $L17, $L16                      #90
$L17:  (1 ref)                                                        #90
   _i[_FP]      = mov 1                                               #91
                jmp $L18                                              #92
$L18:  (2 refs)                                                       #92
   t132(EFLAGS) = cmp(LE) _i[_FP], 8                                  #92
                jcc(LE) t132(EFLAGS), $L20, $L19                      #92
$L20:  (1 ref)                                                        #92
   tv133-(EAX) = mov 1                                                #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[_FP]                #93
   _i[_FP]      = mov tv133-(EAX)                                     #93
                jmp $L18                                              #93
$L19:  (1 ref)                                                        #92
                jmp $L21                                              #95
$L16:  (1 ref)                                                        #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
                jmp $L28                                              #109
$L28:  (1 ref)                                                        #109
   ESP, EFLAGS = add ESP, 4                                           #97
                jmp $L24                                              #109
$L24:  (1 ref)                                                        #109
   [ESP], {ESP} = push 0, {ESP}                                       #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
                jmp $L29                                              #109
$L29:  (1 ref)                                                        #109
   ESP, EFLAGS = add ESP, 4                                           #98
                jmp $L25                                              #109
$L25:  (1 ref)                                                        #109
                jmp $L21                                              #95
$L21:  (2 refs)                                                       #95
                jmp $L3                                               #100
$L4:  (1 ref)                                                         #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
                 jmp $L30                                                 #109
$L30:  (1 ref)                                                            #109
   ESP, EFLAGS = add ESP, 4                                               #101
                 jmp $L26                                                 #109
$L26:  (1 ref)                                                            #109
   t142(EAX)   = mov 0                                                    #108
                 jmp $L22                                                 #108
$L1:  (4 refs)                                                            #68
                 UNWIND _main                                             #68
$L22:  (1 ref)                                                            #108
                 EPILOGSTART                                              #109
                 EXITFUNC _main, t142(EAX)                                #109
                 END _main, {-7}                                          #109
```

IR after Stack Allocation (flag StackAlloc)

```
   {-7}        = START _main                                              #68
                 ENTERFUNC _main                                          #68
                 PROLOGEND                                                #68
   _doitagain[_FP] = mov 1                                                #78
                 jmp $L2                                                  #78
$L3:  (1 ref)                                                             #78
   t109(EAX)   = mov _doitagain[_FP]                                      #78
   tv110-(EAX) = mov t109(EAX)                                            #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                           #78
   _doitagain[_FP] = mov tv110-(EAX)                                      #78
                 jmp $L2                                                  #78
$L2:  (2 refs)                                                            #78
   t111(EFLAGS) = cmp(LE) _doitagain[_FP], 6000(0x00001770)               #78
                 jcc(LE) t111(EFLAGS), $L5, $L4                           #78
$L5:  (1 ref)                                                             #78
   _i[_FP]     = mov 0                                                    #80
                 jmp $L6                                                  #81
$L6:  (2 refs)                                                            #81
   t112(EFLAGS) = cmp(LE) _i[_FP], 16(0x00000010)                         #81
                 jcc(LE) t112(EFLAGS), $L8, $L7                           #81
$L8:  (1 ref)                                                             #81
   t113(EFLAGS) = cmp(GE) _i[_FP], 1                                      #83
                 jcc(GE) t113(EFLAGS), $L10, $L9                          #83
$L10:  (1 ref)                                                            #83
   t114(EFLAGS) = cmp(LE) _i[_FP], 8                                      #83
                 jcc(LE) t114(EFLAGS), $L11, $L9                          #83
$L11:  (1 ref)                                                            #83
   t116(EAX), EFLAGS = imul _i[_FP], 4                                    #83
   tv117-(EAX) = mov t116(EAX)                                            #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                        #83
   [tv117-(EAX)] = mov 1                                                  #83
                 jmp $L9                                                  #83
$L9:  (3 refs)                                                            #83
```

```
   t119(EFLAGS) = cmp(GE) _i[_FP], 2                                   #84
                 jcc(GE) t119(EFLAGS), $L13, $L12                      #84
$L13:  (1 ref)                                                         #84
   t121(EAX), EFLAGS = imul _i[_FP], 4                                 #84
   tv122-(EAX) = mov t121(EAX)                                         #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                     #84
   [tv122-(EAX)] = mov 1                                               #84
                 jmp $L12                                              #84
$L12:  (2 refs)                                                        #84
   t124(EFLAGS) = cmp(LE) _i[_FP], 14(0x0000000e)                      #85
                 jcc(LE) t124(EFLAGS), $L15, $L14                      #85
$L15:  (1 ref)                                                         #85
   t126(EAX), EFLAGS = imul _i[_FP], 4                                 #85
   tv127-(EAX) = mov t126(EAX)                                         #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                     #85
   [tv127-(EAX)] = mov 1                                               #85
                 jmp $L14                                              #85
$L14:  (2 refs)                                                        #85
   tv129-(EAX) = mov 1                                                 #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[_FP]                 #86
   _i[_FP]     = mov tv129-(EAX)                                       #86
                 jmp $L6                                               #87
$L7:  (1 ref)                                                          #81
   [ESP], {ESP} = push &_a, {ESP}                                      #89
   [ESP], {ESP} = push &_b, {ESP}                                      #89
   t140(EAX)   = lea &_q[_FP]                                          #89
   [ESP], {ESP} = push t140(EAX), {ESP}                                #89
   [ESP], {ESP} = push 1, {ESP}                                        #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
                 jmp $L27                                              #109
$L27:  (1 ref)                                                         #109
   ESP, EFLAGS = add ESP, 16(0x00000010)                               #89
                 jmp $L23                                              #109
$L23:  (1 ref)                                                         #109
   t131(EFLAGS) = cmp(EQ) _q[_FP], 1                                   #90
                 jcc(EQ) t131(EFLAGS), $L17, $L16                      #90
$L17:  (1 ref)                                                         #90
   _i[_FP]     = mov 1                                                 #91
                 jmp $L18                                              #92
$L18:  (2 refs)                                                        #92
   t132(EFLAGS) = cmp(LE) _i[_FP], 8                                   #92
                 jcc(LE) t132(EFLAGS), $L20, $L19                      #92
$L20:  (1 ref)                                                         #92
   tv133-(EAX) = mov 1                                                 #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[_FP]                 #93
   _i[_FP]     = mov tv133-(EAX)                                       #93
                 jmp $L18                                              #93
$L19:  (1 ref)                                                         #92
                 jmp $L21                                              #95
$L16:  (1 ref)                                                         #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                 #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
                 jmp $L28                                                #109
$L28:  (1 ref)                                                           #109
   ESP, EFLAGS = add ESP, 4                                              #97
                 jmp $L24                                                #109
$L24:  (1 ref)                                                           #109
   [ESP], {ESP} = push 0, {ESP}                                          #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
                 jmp $L29                                                #109
$L29:  (1 ref)                                                           #109
   ESP, EFLAGS = add ESP, 4                                              #98
                 jmp $L25                                                #109
$L25:  (1 ref)                                                           #109
                 jmp $L21                                                #95
$L21:  (2 refs)                                                          #95
                 jmp $L3                                                 #100
$L4:  (1 ref)                                                            #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                   #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
                 jmp $L30                                                #109
$L30:  (1 ref)                                                           #109
   ESP, EFLAGS = add ESP, 4                                              #101
                 jmp $L26                                                #109
$L26:  (1 ref)                                                           #109
   t142(EAX)   = mov 0                                                   #108
                 jmp $L22                                                #108
$L1:  (4 refs)                                                           #68
                 UNWIND _main                                            #68
$L22:  (1 ref)                                                           #108
                 EPILOGSTART                                             #109
                 EXITFUNC _main, t142(EAX)                               #109
                 END _main, {-7}                                         #109


IR after Frame Generation (flag Frame)

   {-7}        = START _main                                             #68
                 ENTERFUNC _main                                         #68
   [ESP], {ESP} = push EBP, {ESP}                                        #68
   EBP         = mov ESP                                                 #68
   ESP, EFLAGS = sub ESP, 16(0x00000010)                                 #68
                 PROLOGEND                                               #68
   _doitagain[EBP] = mov 1                                               #78
                 jmp $L2                                                 #78
```

```
$L3:  (1 ref)                                                           #78
   t109(EAX)   = mov _doitagain[EBP]                                    #78
   tv110-(EAX) = mov t109(EAX)                                          #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                         #78
   _doitagain[EBP] = mov tv110-(EAX)                                    #78
                 jmp $L2                                                #78
$L2:  (2 refs)                                                          #78
   t111(EFLAGS) = cmp(LE) _doitagain[EBP], 6000(0x00001770)             #78
                 jcc(LE) t111(EFLAGS), $L5, $L4                         #78
$L5:  (1 ref)                                                           #78
   _i[EBP]     = mov 0                                                  #80
                 jmp $L6                                                #81
$L6:  (2 refs)                                                          #81
   t112(EFLAGS) = cmp(LE) _i[EBP], 16(0x00000010)                       #81
                 jcc(LE) t112(EFLAGS), $L8, $L7                         #81
$L8:  (1 ref)                                                           #81
   t113(EFLAGS) = cmp(GE) _i[EBP], 1                                    #83
                 jcc(GE) t113(EFLAGS), $L10, $L9                        #83
$L10:  (1 ref)                                                          #83
   t114(EFLAGS) = cmp(LE) _i[EBP], 8                                    #83
                 jcc(LE) t114(EFLAGS), $L11, $L9                        #83
$L11:  (1 ref)                                                          #83
   t116(EAX), EFLAGS = imul _i[EBP], 4                                  #83
   tv117-(EAX) = mov t116(EAX)                                          #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                      #83
   [tv117-(EAX)] = mov 1                                                #83
                 jmp $L9                                                #83
$L9:  (3 refs)                                                          #83
   t119(EFLAGS) = cmp(GE) _i[EBP], 2                                    #84
                 jcc(GE) t119(EFLAGS), $L13, $L12                       #84
$L13:  (1 ref)                                                          #84
   t121(EAX), EFLAGS = imul _i[EBP], 4                                  #84
   tv122-(EAX) = mov t121(EAX)                                          #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                      #84
   [tv122-(EAX)] = mov 1                                                #84
                 jmp $L12                                               #84
$L12:  (2 refs)                                                         #84
   t124(EFLAGS) = cmp(LE) _i[EBP], 14(0x0000000e)                       #85
                 jcc(LE) t124(EFLAGS), $L15, $L14                       #85
$L15:  (1 ref)                                                          #85
   t126(EAX), EFLAGS = imul _i[EBP], 4                                  #85
   tv127-(EAX) = mov t126(EAX)                                          #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                      #85
   [tv127-(EAX)] = mov 1                                                #85
                 jmp $L14                                               #85
$L14:  (2 refs)                                                         #85
   tv129-(EAX) = mov 1                                                  #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[EBP]                  #86
   _i[EBP]     = mov tv129-(EAX)                                        #86
                 jmp $L6                                                #87
$L7:  (1 ref)                                                           #81
   [ESP], {ESP} = push &_a, {ESP}                                       #89
   [ESP], {ESP} = push &_b, {ESP}                                       #89
   t140(EAX)    = lea &_q[EBP]                                        #89
   [ESP], {ESP} = push t140(EAX), {ESP}                               #89
   [ESP], {ESP} = push 1, {ESP}                                       #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
                  jmp $L27                                             #109
$L27:  (1 ref)                                                         #109
   ESP, EFLAGS = add ESP, 16(0x00000010)                              #89
                  jmp $L23                                             #109
$L23:  (1 ref)                                                         #109
   t131(EFLAGS) = cmp(EQ) _q[EBP], 1                                  #90
                  jcc(EQ) t131(EFLAGS), $L17, $L16                    #90
$L17:  (1 ref)                                                         #90
   _i[EBP]      = mov 1                                               #91
                  jmp $L18                                            #92
$L18:  (2 refs)                                                        #92
   t132(EFLAGS) = cmp(LE) _i[EBP], 8                                  #92
                  jcc(LE) t132(EFLAGS), $L20, $L19                    #92
$L20:  (1 ref)                                                         #92
   tv133-(EAX) = mov 1                                                #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[EBP]                #93
   _i[EBP]      = mov tv133-(EAX)                                     #93
                  jmp $L18                                            #93
$L19:  (1 ref)                                                         #92
                  jmp $L21                                            #95
$L16:  (1 ref)                                                         #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
                  jmp $L28                                             #109
$L28:  (1 ref)                                                         #109
   ESP, EFLAGS = add ESP, 4                                           #97
                  jmp $L24                                             #109
$L24:  (1 ref)                                                         #109
   [ESP], {ESP} = push 0, {ESP}                                       #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
                  jmp $L29                                             #109
$L29:  (1 ref)                                                         #109
   ESP, EFLAGS = add ESP, 4                                           #98
                  jmp $L25                                             #109
$L25:  (1 ref)                                                         #109
                  jmp $L21                                            #95
$L21:  (2 refs)                                                        #95
                  jmp $L3                                              #100
$L4:  (1 ref)                                                          #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
                     jmp $L30                                               #109
$L30:  (1 ref)                                                              #109
   ESP, EFLAGS = add ESP, 4                                                 #101
                     jmp $L26                                               #109
$L26:  (1 ref)                                                              #109
   t142(EAX)    = mov 0                                                     #108
                     jmp $L22                                               #108
$L1:  (4 refs)                                                              #68
                     UNWIND _main                                           #68
$L22:  (1 ref)                                                              #108
                     EPILOGSTART                                            #109
   ESP          = mov EBP                                                   #109
   EBP, {ESP}   = pop [ESP], {ESP}                                          #109
   {ESP}        = ret {ESP}                                                 #109
                     EXITFUNC _main, t142(EAX)                              #109
                     END _main, {-7}                                        #109


IR after Switch Lower (flag SwitchLower)

   {-7}         = START _main                                               #68
                     ENTERFUNC _main                                        #68
   [ESP], {ESP} = push EBP, {ESP}                                           #68
   EBP          = mov ESP                                                   #68
   ESP, EFLAGS = sub ESP, 16(0x00000010)                                    #68
                     PROLOGEND                                              #68
   _doitagain[EBP] = mov 1                                                  #78
                     jmp $L2                                                #78
$L3:  (1 ref)                                                               #78
   t109(EAX)    = mov _doitagain[EBP]                                       #78
   tv110-(EAX)  = mov t109(EAX)                                             #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                             #78
   _doitagain[EBP] = mov tv110-(EAX)                                        #78
                     jmp $L2                                                #78
$L2:  (2 refs)                                                              #78
   t111(EFLAGS) = cmp(LE) _doitagain[EBP], 6000(0x00001770)                 #78
                     jcc(LE) t111(EFLAGS), $L5, $L4                         #78
$L5:  (1 ref)                                                               #78
   _i[EBP]      = mov 0                                                     #80
                     jmp $L6                                                #81
$L6:  (2 refs)                                                              #81
   t112(EFLAGS) = cmp(LE) _i[EBP], 16(0x00000010)                           #81
                     jcc(LE) t112(EFLAGS), $L8, $L7                         #81
$L8:  (1 ref)                                                               #81
   t113(EFLAGS) = cmp(GE) _i[EBP], 1                                        #83
                     jcc(GE) t113(EFLAGS), $L10, $L9                        #83
$L10:  (1 ref)                                                              #83
   t114(EFLAGS) = cmp(LE) _i[EBP], 8                                        #83
                     jcc(LE) t114(EFLAGS), $L11, $L9                        #83
$L11:  (1 ref)                                                              #83
```

```
   t116(EAX), EFLAGS = imul _i[EBP], 4                                #83
   tv117-(EAX) = mov t116(EAX)                                        #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                    #83
   [tv117-(EAX)] = mov 1                                              #83
                 jmp $L9                                              #83
$L9:  (3 refs)                                                        #83
   t119(EFLAGS) = cmp(GE) _i[EBP], 2                                  #84
                 jcc(GE) t119(EFLAGS), $L13, $L12                     #84
$L13:  (1 ref)                                                        #84
   t121(EAX), EFLAGS = imul _i[EBP], 4                                #84
   tv122-(EAX) = mov t121(EAX)                                        #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                    #84
   [tv122-(EAX)] = mov 1                                              #84
                 jmp $L12                                             #84
$L12:  (2 refs)                                                       #84
   t124(EFLAGS) = cmp(LE) _i[EBP], 14(0x0000000e)                     #85
                 jcc(LE) t124(EFLAGS), $L15, $L14                     #85
$L15:  (1 ref)                                                        #85
   t126(EAX), EFLAGS = imul _i[EBP], 4                                #85
   tv127-(EAX) = mov t126(EAX)                                        #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                    #85
   [tv127-(EAX)] = mov 1                                              #85
                 jmp $L14                                             #85
$L14:  (2 refs)                                                       #85
   tv129-(EAX) = mov 1                                                #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[EBP]                #86
   _i[EBP]      = mov tv129-(EAX)                                     #86
                 jmp $L6                                              #87
$L7:  (1 ref)                                                         #81
   [ESP], {ESP} = push &_a, {ESP}                                     #89
   [ESP], {ESP} = push &_b, {ESP}                                     #89
   t140(EAX)    = lea &_q[EBP]                                        #89
   [ESP], {ESP} = push t140(EAX), {ESP}                               #89
   [ESP], {ESP} = push 1, {ESP}                                       #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
                 jmp $L27                                             #109
$L27:  (1 ref)                                                        #109
   ESP, EFLAGS = add ESP, 16(0x00000010)                              #89
                 jmp $L23                                             #109
$L23:  (1 ref)                                                        #109
   t131(EFLAGS) = cmp(EQ) _q[EBP], 1                                  #90
                 jcc(EQ) t131(EFLAGS), $L17, $L16                     #90
$L17:  (1 ref)                                                        #90
   _i[EBP]      = mov 1                                               #91
                 jmp $L18                                             #92
$L18:  (2 refs)                                                       #92
   t132(EFLAGS) = cmp(LE) _i[EBP], 8                                  #92
                 jcc(LE) t132(EFLAGS), $L20, $L19                     #92
$L20:  (1 ref)                                                        #92
   tv133-(EAX) = mov 1                                                #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[EBP]                #93
   _i[EBP]      = mov tv133-(EAX)                                        #93
                 jmp $L18                                                #93
$L19:  (1 ref)                                                           #92
                 jmp $L21                                                #95
$L16:  (1 ref)                                                           #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                   #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
                 jmp $L28                                                #109
$L28:  (1 ref)                                                           #109
   ESP, EFLAGS = add ESP, 4                                              #97
                 jmp $L24                                                #109
$L24:  (1 ref)                                                           #109
   [ESP], {ESP} = push 0, {ESP}                                          #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
                 jmp $L29                                                #109
$L29:  (1 ref)                                                           #109
   ESP, EFLAGS = add ESP, 4                                              #98
                 jmp $L25                                                #109
$L25:  (1 ref)                                                           #109
                 jmp $L21                                                #95
$L21:  (2 refs)                                                          #95
                 jmp $L3                                                 #100
$L4:  (1 ref)                                                            #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                   #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
                 jmp $L30                                                #109
$L30:  (1 ref)                                                           #109
   ESP, EFLAGS = add ESP, 4                                              #101
                 jmp $L26                                                #109
$L26:  (1 ref)                                                           #109
   t142(EAX)   = mov 0                                                   #108
                 jmp $L22                                                #108
$L1:  (4 refs)                                                           #68
                 UNWIND _main                                            #68
$L22:  (1 ref)                                                           #108
                 EPILOGSTART                                             #109
   ESP         = mov EBP                                                 #109
   EBP, {ESP}  = pop [ESP], {ESP}                                        #109
   {ESP}       = ret {ESP}                                               #109
                 EXITFUNC _main, t142(EAX)                               #109
                 END _main, {-7}                                         #109
```

IR after Block Layout (flag Block Layout)

```
   {-7}        = START _main                                            #68
                 ENTERFUNC _main                                        #68
   [ESP], {ESP} = push EBP, {ESP}                                       #68
   EBP         = mov ESP                                                #68
   ESP, EFLAGS = sub ESP, 16(0x00000010)                                #68
                 PROLOGEND                                              #68
   _doitagain[EBP] = mov 1                                              #78
                 jmp $L2                                                #78
$L2:  (2 refs)                                                          #78
   t111(EFLAGS) = cmp(LE) _doitagain[EBP], 6000(0x00001770)             #78
                 jcc(LE) t111(EFLAGS), $L5                              #78
                 jmp $L4                                                #78
$L5:  (1 ref)                                                           #78
   _i[EBP]     = mov 0                                                  #80
                 jmp $L6                                                #81
$L6:  (2 refs)                                                          #81
   t112(EFLAGS) = cmp(LE) _i[EBP], 16(0x00000010)                       #81
                 jcc(LE) t112(EFLAGS), $L8                              #81
                 jmp $L7                                                #81
$L8:  (1 ref)                                                           #81
   t113(EFLAGS) = cmp(GE) _i[EBP], 1                                    #83
                 jcc(GE) t113(EFLAGS), $L10                             #83
                 jmp $L9                                                #83
$L10:  (1 ref)                                                          #83
   t114(EFLAGS) = cmp(LE) _i[EBP], 8                                    #83
                 jcc(LE) t114(EFLAGS), $L11                             #83
                 jmp $L9                                                #83
$L11:  (1 ref)                                                          #83
   t116(EAX), EFLAGS = imul _i[EBP], 4                                  #83
   tv117-(EAX) = mov t116(EAX)                                          #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                      #83
   [tv117-(EAX)] = mov 1                                                #83
                 jmp $L9                                                #83
$L9:  (3 refs)                                                          #83
   t119(EFLAGS) = cmp(GE) _i[EBP], 2                                    #84
                 jcc(GE) t119(EFLAGS), $L13                             #84
                 jmp $L12                                               #84
$L13:  (1 ref)                                                          #84
   t121(EAX), EFLAGS = imul _i[EBP], 4                                  #84
   tv122-(EAX) = mov t121(EAX)                                          #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                      #84
   [tv122-(EAX)] = mov 1                                                #84
                 jmp $L12                                               #84
$L12:  (2 refs)                                                         #84
   t124(EFLAGS) = cmp(LE) _i[EBP], 14(0x0000000e)                       #85
                 jcc(LE) t124(EFLAGS), $L15                             #85
                 jmp $L14                                               #85
$L15:  (1 ref)                                                          #85
   t126(EAX), EFLAGS = imul _i[EBP], 4                                  #85
   tv127-(EAX) = mov t126(EAX)                                          #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                      #85
   [tv127-(EAX)] = mov 1                                                #85
```

```
                  jmp $L14                                              #85
$L14:  (2 refs)                                                         #85
   tv129-(EAX) = mov 1                                                  #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[EBP]                  #86
   _i[EBP]     = mov tv129-(EAX)                                        #86
                  jmp $L6                                               #87
$L7:  (1 ref)                                                           #81
   [ESP], {ESP} = push &_a, {ESP}                                       #89
   [ESP], {ESP} = push &_b, {ESP}                                       #89
   t140(EAX)    = lea &_q[EBP]                                          #89
   [ESP], {ESP} = push t140(EAX), {ESP}                                 #89
   [ESP], {ESP} = push 1, {ESP}                                         #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
                  jmp $L27                                              #109
$L27:  (1 ref)                                                          #109
   ESP, EFLAGS = add ESP, 16(0x00000010)                                #89
                  jmp $L23                                              #109
$L23:  (1 ref)                                                          #109
   t131(EFLAGS) = cmp(EQ) _q[EBP], 1                                    #90
                  jcc(EQ) t131(EFLAGS), $L17                            #90
                  jmp $L16                                              #90
$L17:  (1 ref)                                                          #90
   _i[EBP]     = mov 1                                                  #91
                  jmp $L18                                              #92
$L18:  (2 refs)                                                         #92
   t132(EFLAGS) = cmp(LE) _i[EBP], 8                                    #92
                  jcc(LE) t132(EFLAGS), $L20                            #92
                  jmp $L19                                              #92
$L20:  (1 ref)                                                          #92
   tv133-(EAX) = mov 1                                                  #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[EBP]                  #93
   _i[EBP]     = mov tv133-(EAX)                                        #93
                  jmp $L18                                              #93
$L19:  (1 ref)                                                          #92
                  jmp $L21                                              #95
$L16:  (1 ref)                                                          #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                  #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
                  jmp $L28                                              #109
$L28:  (1 ref)                                                          #109
   ESP, EFLAGS = add ESP, 4                                             #97
                  jmp $L24                                              #109
$L24:  (1 ref)                                                          #109
   [ESP], {ESP} = push 0, {ESP}                                         #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
```

```
                  jmp $L29                                                 #109
$L29:  (1 ref)                                                             #109
   ESP, EFLAGS = add ESP, 4                                                #98
                  jmp $L25                                                 #109
$L25:  (1 ref)                                                             #109
                  jmp $L21                                                 #95
$L21:  (2 refs)                                                            #95
                  jmp $L3                                                  #100
$L3:  (1 ref)                                                              #78
   t109(EAX)    = mov _doitagain[EBP]                                      #78
   tv110-(EAX) = mov t109(EAX)                                             #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                            #78
   _doitagain[EBP] = mov tv110-(EAX)                                       #78
                  jmp $L2                                                  #78
$L4:  (1 ref)                                                              #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                     #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
                  jmp $L30                                                 #109
$L30:  (1 ref)                                                             #109
   ESP, EFLAGS = add ESP, 4                                                #101
                  jmp $L26                                                 #109
$L26:  (1 ref)                                                             #109
   t142(EAX)    = mov 0                                                    #108
                  jmp $L22                                                 #108
$L22:  (1 ref)                                                             #108
                  EPILOGSTART                                              #109
   ESP          = mov EBP                                                  #109
   EBP, {ESP}   = pop [ESP], {ESP}                                         #109
   {ESP}        = ret {ESP}                                                #109
                  EXITFUNC _main, t142(EAX)                                #109
$L1:  (4 refs)                                                             #68
                  UNWIND _main                                             #68
                  END _main, {-7}                                          #109
```

IR after Flow Optimization (flag FlowOpts)

```
   {-7}         = START _main                                              #68
                  ENTERFUNC _main                                          #68
   [ESP], {ESP} = push EBP, {ESP}                                          #68
   EBP          = mov ESP                                                  #68
   ESP, EFLAGS = sub ESP, 16(0x00000010)                                   #68
                  PROLOGEND                                                #68
   _doitagain[EBP] = mov 1                                                 #78
$L2:  (1 ref)                                                              #78
   t111(EFLAGS) = cmp(LE) _doitagain[EBP], 6000(0x00001770)                #78
                  jcc(GT) t111(EFLAGS), $L4                                #78
   _i[EBP]      = mov 0                                                    #80
$L6:  (1 ref)                                                              #81
   t112(EFLAGS) = cmp(LE) _i[EBP], 16(0x00000010)                          #81
```

```
                jcc(GT) t112(EFLAGS), $L7                                   #81
   t113(EFLAGS) = cmp(GE) _i[EBP], 1                                        #83
                jcc(LT) t113(EFLAGS), $L9                                   #83
   t114(EFLAGS) = cmp(LE) _i[EBP], 8                                        #83
                jcc(GT) t114(EFLAGS), $L9                                   #83
   t116(EAX), EFLAGS = imul _i[EBP], 4                                      #83
   tv117-(EAX) = mov t116(EAX)                                              #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                          #83
   [tv117-(EAX)] = mov 1                                                    #83
$L9:  (2 refs)                                                              #83
   t119(EFLAGS) = cmp(GE) _i[EBP], 2                                        #84
                jcc(LT) t119(EFLAGS), $L12                                  #84
   t121(EAX), EFLAGS = imul _i[EBP], 4                                      #84
   tv122-(EAX) = mov t121(EAX)                                              #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                          #84
   [tv122-(EAX)] = mov 1                                                    #84
$L12:  (1 ref)                                                              #84
   t124(EFLAGS) = cmp(LE) _i[EBP], 14(0x0000000e)                           #85
                jcc(GT) t124(EFLAGS), $L14                                  #85
   t126(EAX), EFLAGS = imul _i[EBP], 4                                      #85
   tv127-(EAX) = mov t126(EAX)                                              #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                          #85
   [tv127-(EAX)] = mov 1                                                    #85
$L14:  (1 ref)                                                              #85
   tv129-(EAX) = mov 1                                                      #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[EBP]                      #86
   _i[EBP]     = mov tv129-(EAX)                                            #86
                jmp $L6                                                     #87
$L7:  (1 ref)                                                               #81
   [ESP], {ESP} = push &_a, {ESP}                                           #89
   [ESP], {ESP} = push &_b, {ESP}                                           #89
   t140(EAX)    = lea &_q[EBP]                                              #89
   [ESP], {ESP} = push t140(EAX), {ESP}                                     #89
   [ESP], {ESP} = push 1, {ESP}                                             #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
   ESP, EFLAGS = add ESP, 16(0x00000010)                                    #89
   t131(EFLAGS) = cmp(EQ) _q[EBP], 1                                        #90
                jcc(NE) t131(EFLAGS), $L16                                  #90
   _i[EBP]     = mov 1                                                      #91
$L18:  (1 ref)                                                              #92
   t132(EFLAGS) = cmp(LE) _i[EBP], 8                                        #92
                jcc(GT) t132(EFLAGS), $L3                                   #92
   tv133-(EAX) = mov 1                                                      #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[EBP]                      #93
   _i[EBP]     = mov tv133-(EAX)                                            #93
                jmp $L18                                                    #93
$L16:  (1 ref)                                                              #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                      #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
```

```
    #97
   ESP, EFLAGS = add ESP, 4                                            #97
   [ESP], {ESP} = push 0, {ESP}                                        #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
   ESP, EFLAGS = add ESP, 4                                            #98
$L3:  (1 ref)                                                          #78
   t109(EAX)    = mov _doitagain[EBP]                                  #78
   tv110-(EAX) = mov t109(EAX)                                         #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                        #78
   _doitagain[EBP] = mov tv110-(EAX)                                   #78
                 jmp $L2                                               #78
$L4:  (1 ref)                                                          #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                 #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
   ESP, EFLAGS = add ESP, 4                                            #101
   t142(EAX)    = mov 0                                                #108
                 EPILOGSTART                                           #109
   ESP          = mov EBP                                              #109
   EBP, {ESP}   = pop [ESP], {ESP}                                     #109
   {ESP}        = ret {ESP}                                            #109
                 EXITFUNC _main, t142(EAX)                             #109
$L1:  (4 refs)                                                         #68
                 UNWIND _main                                          #68
                 END _main, {-7}                                       #109


IR after Encoding, Listing, COFF Emission (flag Encode)

   {-7}         = START _main                                          #68
                 ENTERFUNC _main                                       #68
   [ESP], {ESP} = push EBP, {ESP}                                      #68
   EBP          = mov ESP                                              #68
   ESP, EFLAGS = sub ESP, 16(0x00000010)                               #68
                 PROLOGEND                                             #68
   _doitagain[EBP] = mov 1                                             #78
$L2:  (1 ref)                                                          #78
   t111(EFLAGS) = cmp(LE) _doitagain[EBP], 6000(0x00001770)            #78
                 jg(GT) t111(EFLAGS), $L4                              #78
   _i[EBP]      = mov 0                                                #80
$L6:  (1 ref)                                                          #81
   t112(EFLAGS) = cmp(LE) _i[EBP], 16(0x00000010)                      #81
                 jg(GT) t112(EFLAGS), $L7                              #81
   t113(EFLAGS) = cmp(GE) _i[EBP], 1                                   #83
                 jl(LT) t113(EFLAGS), $L9                              #83
   t114(EFLAGS) = cmp(LE) _i[EBP], 8                                   #83
                 jg(GT) t114(EFLAGS), $L9                              #83
   tv116-(EAX)<*16>, EFLAGS = imul _i[EBP], 4                          #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                    #83
   [tv117-(EAX)] = mov 1                                              #83
$L9:  (2 refs)                                                        #83
   t119(EFLAGS) = cmp(GE) _i[EBP], 2                                  #84
                  jl(LT) t119(EFLAGS), $L12                           #84
   tv121-(EAX)<*19>, EFLAGS = imul _i[EBP], 4                         #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                    #84
   [tv122-(EAX)] = mov 1                                              #84
$L12:  (1 ref)                                                        #84
   t124(EFLAGS) = cmp(LE) _i[EBP], 14(0x0000000e)                     #85
                  jg(GT) t124(EFLAGS), $L14                           #85
   tv126-(EAX)<*22>, EFLAGS = imul _i[EBP], 4                         #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                    #85
   [tv127-(EAX)] = mov 1                                              #85
$L14:  (1 ref)                                                        #85
   tv129-(EAX) = mov 1                                                #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[EBP]                #86
   _i[EBP]      = mov tv129-(EAX)                                     #86
                  jmp $L6                                             #87
$L7:  (1 ref)                                                         #81
   [ESP], {ESP} = push &_a, {ESP}                                     #89
   [ESP], {ESP} = push &_b, {ESP}                                     #89
   t140(EAX)    = lea &_q[EBP]                                        #89
   [ESP], {ESP} = push t140(EAX), {ESP}                               #89
   [ESP], {ESP} = push 1, {ESP}                                       #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
   ESP, EFLAGS = add ESP, 16(0x00000010)                              #89
   t131(EFLAGS) = cmp(EQ) _q[EBP], 1                                  #90
                  jne(NE) t131(EFLAGS), $L16                          #90
   _i[EBP]      = mov 1                                               #91
$L18:  (1 ref)                                                        #92
   t132(EFLAGS) = cmp(LE) _i[EBP], 8                                  #92
                  jg(GT) t132(EFLAGS), $L3                            #92
   tv133-(EAX) = mov 1                                                #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[EBP]                #93
   _i[EBP]      = mov tv133-(EAX)                                     #93
                  jmp $L18                                            #93
$L16:  (1 ref)                                                        #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
   ESP, EFLAGS = add ESP, 4                                           #97
   [ESP], {ESP} = push 0, {ESP}                                       #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
   ESP, EFLAGS = add ESP, 4                                           #98
$L3:  (1 ref)                                                         #78
```

```
   tv109-(EAX)<*4> = mov _doitagain[EBP]                                    #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                             #78
   _doitagain[EBP] = mov tv110-(EAX)                                        #78
                 jmp $L2                                                    #78
$L4:  (1 ref)                                                               #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                      #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
   ESP, EFLAGS = add ESP, 4                                                 #101
   t142(EAX)   = mov 0                                                      #108
                 EPILOGSTART                                                #109
   ESP         = mov EBP                                                    #109
   EBP, {ESP}  = pop [ESP], {ESP}                                           #109
   {ESP}       = ret {ESP}                                                  #109
                 EXITFUNC _main, t142(EAX)                                  #109
$L1:  (4 refs)                                                              #68
                 UNWIND _main                                               #68
                 END _main, {-7}                                            #109


IR after LIR Phases (flag LIR Phases) [SubPhaseList]

   {-7}        = START _main                                                #68
                 ENTERFUNC _main                                            #68
   [ESP], {ESP} = push EBP, {ESP}                                           #68
   EBP         = mov ESP                                                    #68
   ESP, EFLAGS = sub ESP, 16(0x00000010)                                    #68
                 PROLOGEND                                                  #68
   _doitagain[EBP] = mov 1                                                  #78
$L2:  (1 ref)                                                               #78
   t111(EFLAGS) = cmp(LE) _doitagain[EBP], 6000(0x00001770)                 #78
                 jg(GT) t111(EFLAGS), $L4                                   #78
   _i[EBP]     = mov 0                                                      #80
$L6:  (1 ref)                                                               #81
   t112(EFLAGS) = cmp(LE) _i[EBP], 16(0x00000010)                           #81
                 jg(GT) t112(EFLAGS), $L7                                   #81
   t113(EFLAGS) = cmp(GE) _i[EBP], 1                                        #83
                 jl(LT) t113(EFLAGS), $L9                                   #83
   t114(EFLAGS) = cmp(LE) _i[EBP], 8                                        #83
                 jg(GT) t114(EFLAGS), $L9                                   #83
   tv116-(EAX)<*16>, EFLAGS = imul _i[EBP], 4                               #83
   tv117-(EAX)<*17>, EFLAGS = add tv117-(EAX), &_a                          #83
   [tv117-(EAX)] = mov 1                                                    #83
$L9:  (2 refs)                                                              #83
   t119(EFLAGS) = cmp(GE) _i[EBP], 2                                        #84
                 jl(LT) t119(EFLAGS), $L12                                  #84
   tv121-(EAX)<*19>, EFLAGS = imul _i[EBP], 4                               #84
   tv122-(EAX)<*20>, EFLAGS = add tv122-(EAX), &_b                          #84
   [tv122-(EAX)] = mov 1                                                    #84
$L12:  (1 ref)                                                              #84
   t124(EFLAGS) = cmp(LE) _i[EBP], 14(0x0000000e)                           #85
```

```
                 jg(GT) t124(EFLAGS), $L14                               #85
   tv126-(EAX)<*22>, EFLAGS = imul _i[EBP], 4                            #85
   tv127-(EAX)<*23>, EFLAGS = add tv127-(EAX), &_c                       #85
   [tv127-(EAX)] = mov 1                                                 #85
$L14:  (1 ref)                                                           #85
   tv129-(EAX) = mov 1                                                   #86
   tv129-(EAX)<*24>, EFLAGS = add tv129-(EAX), _i[EBP]                   #86
   _i[EBP]     = mov tv129-(EAX)                                         #86
                 jmp $L6                                                 #87
$L7:   (1 ref)                                                           #81
   [ESP], {ESP} = push &_a, {ESP}                                        #89
   [ESP], {ESP} = push &_b, {ESP}                                        #89
   t140(EAX)   = lea &_q[EBP]                                            #89
   [ESP], {ESP} = push t140(EAX), {ESP}                                  #89
   [ESP], {ESP} = push 1, {ESP}                                          #89
   {-5}, {EAX ECX ESP EFLAGS} = call _try, $out[ESP], $out[ESP]+32, $out[ESP
]+64, $out[ESP]+96, {-5}, {EAX ECX ESP EFLAGS} [Handler: $L1]
#89
   ESP, EFLAGS = add ESP, 16(0x00000010)                                 #89
   t131(EFLAGS) = cmp(EQ) _q[EBP], 1                                     #90
                 jne(NE) t131(EFLAGS), $L16                              #90
   _i[EBP]     = mov 1                                                   #91
$L18:  (1 ref)                                                           #92
   t132(EFLAGS) = cmp(LE) _i[EBP], 8                                     #92
                 jg(GT) t132(EFLAGS), $L3                                #92
   tv133-(EAX) = mov 1                                                   #93
   tv133-(EAX)<*27>, EFLAGS = add tv133-(EAX), _i[EBP]                   #93
   _i[EBP]     = mov tv133-(EAX)                                         #93
                 jmp $L18                                                #93
$L16:  (1 ref)                                                           #90
   [ESP], {ESP} = push &$SG1197, {ESP}                                   #97
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #97
   ESP, EFLAGS = add ESP, 4                                              #97
   [ESP], {ESP} = push 0, {ESP}                                          #98
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _exit, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 F
PUStatus} [Handler: $L1]
    #98
   ESP, EFLAGS = add ESP, 4                                              #98
$L3:   (1 ref)                                                           #78
   tv109-(EAX)<*4> = mov _doitagain[EBP]                                 #78
   tv110-(EAX)<*5>, EFLAGS = add tv110-(EAX), 1                          #78
   _doitagain[EBP] = mov tv110-(EAX)                                     #78
                 jmp $L2                                                 #78
$L4:   (1 ref)                                                           #78
   [ESP], {ESP} = push &$SG1198, {ESP}                                   #101
   {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7 FPUStatus} = call
 _printf, $out[ESP], {-5}, {EAX ECX EDX ESP EFLAGS MM0-MM7 XMM0-XMM7 FP0-FP7
 FPUStatus} [Handler: $L1]
    #101
   ESP, EFLAGS = add ESP, 4                                            #101
   t142(EAX)   = mov 0                                                 #108
                 EPILOGSTART                                           #109
   ESP         = mov EBP                                               #109
   EBP, {ESP}  = pop [ESP], {ESP}                                      #109
   {ESP}       = ret {ESP}                                             #109
                 EXITFUNC _main, t142(EAX)                             #109
$L1:  (4 refs)                                                         #68
                 UNWIND _main                                          #68
                 END _main, {-7}                                       #109
```

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